

Test Specifications Fuel Injection Pumps and Governors

40

1A WPP 001/4 KHD 3,0 a
3. Edition

En

PES 3 A 90 D 410/3 RS 2610 RSV 325-1150 A 8 B 2157 L

supersedes 6.83

Komb.-Nr. 0 400 863 006

A 8 C 2157 L

company KHD

- 3 - 2 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

engine F 3 L 913G

37 kW (50 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$ mm (from BDC)
 $(2,45-2,65)$

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	6,9 - 7,0	0,3(0,45)			
325	8,9-9,1	1,6 - 2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
loose	800	0,3-1,0	-	-	-	ca.17	325	8,5	1150	10,8+0,1
	x =	6,75					100	min.19,5	500	11,1+0,1
ca.52	9,8	1190-1200					325	8,9-9,1	1055	10,9+0,2
2a	4,0	1270-1300					470-530	= 2,0		
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1150	68,5-69,5 (66,5-71,5)	1190-1200*	800	60,0-62,0 (58,0-64,0)	100	13,0-13,6	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

A1

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

AA

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 1

4. Edition

En

PES3A85D410/3 RS 2642 RSV325-1150A8B2102-1L
Komb. Nr. 0 400 863 007
1 - 3 - 2 je 120° ±0,5 (± 0,75)

supersedes 2.84
company KHD
engine F3L 913
42 kW (57 PS)₁
2300 min₁
Tractor D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,5+0,1	7,1-7,4	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 20	325	8,5	1150	11,5+0,1
	X=						100	min. 19,0	700	11,8+0,1
**							325	8,9-0,1	1075	11,6+0,3
							485-545=2,0			
⑤ ca. 54	10,2	1190-1200								
	4,0	1265-1295								
	1350	0,3-1,7								

** Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
	1150	70,5-71,5 (68,5-73,5)	1190-1200 *	700	65,0-67,0 (63,0-69,0)	100	133,5-143,5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

A2

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

A2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 d

7. Edition

PE 8 MW 100/720 LS 1010
RQV 300-1150 MW 23
Komb. 0 403 548 002

supersede 1.82
company KHD
engine BF 8 L 413 F
212 kW (288 PS)
/ 2100 min
bzw. 206 kW
/ 2300 min⁻¹
(Maxidyne)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 - 45- 90-135-180-225-270-315 ± 0,5 (0,75)⁰

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,10-3,20}{(3,05-3,25)}$ mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,	13,6-13,8	0,35(0,6)			
300	6,3-6,5	1,25-1,65	0,35(0,55)			
500	10,2+0,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180 1400	15,2-17,8 0 = 1,0				ca. 18,5	100 300	min. 7,8 6,3-6,5	300 500 1200	1,4 3,2-3,8 8,5-8,6
ca. 63	9,2 4,0	1160-1170 1235-1265					430-490 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,8 bar 136,0-138,0 (134,0-140,0)	1160-1170*	LDA 500	0 bar 94,0-96,0 (92,0-98,0)	100	136,5-146,5 (133,5-149,5)	700 780 1050 1150	12,5+0, 12,5+0, 11,2+0,2 10,2+0,3
					100-230 (80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

A3

A3

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

KHD 12,7 d -2-

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1010 + MW 23	0,8	0,24	12,5 - 12,6
		0,38	10,5 - 10,6
		0	11,8 - 11,9
		0	10,2 - 10,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 c

4. Edition

En

PE 8 MW 100/720 LS 1010
RQV 900-1250 MW 31
Komb. 0 403 548 003

supersedes 9.82

company: KHD

engine: BF 8 L 413 F
235 kW (320 PS)
2500 min

Testoil-SU 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,10-3,20$ mm (from BDC) RW 9,0 - 12,0 mm
(3,05-3,25)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,2 ^{+0,1}	13,0-13,2	0,35(0,6)			
300	6,4-6,6	1,25- 1,65	0,35(0,55)			
850	12,7 ^{+0,1}		0,5 (0,7)			
500	9,7 ^{+0,1}		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250 1500	15,2-17,8 0 - 1,0				ca. 15	100 300 670-730=2,0	min. 8,4 6,8-6,9		
ca. 65	11,2 4,0	1290-1300 1375-1405				380-440 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 8		Torque-control travel Control rod travel mm 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1250	0,9 bar 130,0-132,0 (128,0-134,0)	1290-1300*	LDA 850	0,9 bar 130,5-134,5 (128,5-136,5)	100	136,5-146,5 (133,5-149,5)	850 950 1200 1250	12,7 ^{+0,1} 12,4 ^{+0,2} 12,2 ^{+0,1} 12,2 ^{+0,1}
			LDA 500	0 bar 84,5- 86,5 (82,5- 88,5)	300	12,5-16,5 (9,0-18,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

A5

11.82

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

A5

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 XXXXX
 XXXXXXX

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1) diminution difference
LS 1010 + MW 31	0,9 bar	0,4	12,7 - 12,8
		0,3	11,9 - 12,0
			10,4 - 10,6

Notes
 (1) when n rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 MW 100/720 LS 1010
RQ 300/1250 MW 32
O 403 548 004

supersedes -
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 -45 -90 -135-180-225-270-315 + 0,50 (0,75)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,10-3,20}{(3,05-3,25)}$ mm (from BDC) RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,2+0,1	13,0 - 13,2	0,35(0,6)			
300	6,4-6,6	1,25 - 1,65	0,35(0,55)			
850	12,7+0,1		0,5 (0,7)			
500	9,7+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
600	19,2-20,8	60	20,0	11,2	1295-1310	300	6,5	100	8,1	850	12,7+0,1
1500	0 - 1,0	VH = 46°	4,0		1345-1375			300	6,4-6,6	950	12,4+0,2
								375-415 = 2,0		1200	12,2+0,1
										1250	12,2+0,1

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1295 - 1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod stop mm 3a	Control rod stop mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 8	
LDA 1250	0,7 bar 130,0-132,0 (128,0-134,0)		0,7 bar 130,5-134,5 (128,5-136,5)	100	136,5-146,5 (133,5-149,5)		
			0 bar 84,5-86,5 (82,5-88,5)				

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
Ppe.LS1010 RQ..MW32	0,7 bar		12,7 - 12,8
		0,3	11,9 - 12,0
		0,23	10,4 - 10,6

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

1A WPP 001/4 KHD 1g 9
1. Edition

En

PES 6 MW 100/720 RS 1013
RSV 325...1100 MW 8/310
Komb. Nr. 0 403 476 010

supersedes 5.81
company KHD
engine BF 6 L 413 FR
tractor DX 230
147 kW / 2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10 - 3,20 mm (from BDC) RW 9,0 - 12,0 mm
(3.05 - 3,25)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,8 ^{+0,1}	10,6 - 10,8	0,35(0,6)			
325	5,6-5,8	1,25- 1,65	0,35(0,55)			
900	12,4+0,1		0,5 (0,7)			
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 18	325	5,2	1100	11,8-11,9
ca. 50		1140-1150 = 10,8 1155-1185 = 4,0 1360 = 0,3-1,7					100 325 550- 610	min. 19 5,6-5,8 2,0	900	12,4-12,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	4	rev/min 5	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,55 bar 106,0-108,0 (104,0-110,0)	1140-1150*	LDA 900	0,55 bar 114,5-118,5 (112,5-120,5)	100	min. 120	325	5,7	
			LDA 500	0 bar 82,5-84,5 (80,5-86,5)	325	12,5-16,5 (10,0-19,0)			

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D. Adjustment Test for Manifold Pressure Compensator

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1013 + MW 8/310		0,4	11,9 - 12,0
		0,55	11,1 - 11,2

Notes

(1) when n

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4
3. Edition

KHD 9,6g

En

Testoil ISO 4113

PE 6 MW 100/720 LS 1017 RO 300/1250 MW 26
0 403 546 003
1 - 6 - 5 - 4 - 3 - 2
0 - 75 - 120 - 195 - 240 - 315 $\pm 0,50$ (0,75)

supersedes 11.82
company KHD
engine F6L413FX
150 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,05-3,25) mm (from BDC) Δ = 9,0 - 12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,9+0,1	11,1-11,3	0,5(0,6)			
350	8,2-8,4	1,25-1,65	0,35(0,55)			
700	12,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,6	1295-1310	300	8,3	100	min.9,9	700	12,7-12,8
				4,0	1345-1375			350	8,2-8,4	850	12,4-12,5
1450	0,0-1,0							380-440 = 2,0		1100	11,9-12,0

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation Δ

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1250	111,0-113,0 (109,0-115,0)		700	109,5-113,5 (107,5-115,5)	100	126,5-136,5 (123,5-139,5)
					350	12,5-16,5 (10,0-19,0)
					100-270	(80-300)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d

1. Edition

En

PE8 P120 A920/5 RS 293

RZU 750 P 1/9 R

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 029

1-6- 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each culet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	4 Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750 758 800	1,0-14,0 1,0- 1,5 1,0	-	-	-	-	-	-	-	-

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 °C (104 F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

A12

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RZU 750 P 1/14 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75 - 90 - 120 - 210 - 225 - 315 - 345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 034

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW $9,0 - 12,0$ mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 $\pm 0,1$	20,5-22,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm/rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	750	14,0	-	-	-	-	-	-		
	770	4,8-8,3								
	800	1,0-1,5								
	840	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop		Rotational-speed limit	Fuel delivery characteristics		Starting fuel delivery		Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

A13

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

A13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RS 250/1000 P 1/422 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75-90 -120-210-225-315-345 ° ±0,5° (±0,75°)

supersedes

KHD

company BA 16 M 816

engine Komb.-Nr. 0 401 878 096

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9±0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	150-200	250	6,4	1000	14,9-15,0
		x = 5,0					390-450	=2,0	420	16,2-16,8
VHca.53 F1 max. 2a	13,9	1040-1050						550	14,9-15,0	
	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	4	5	6	7	8	9
Not known! Carry out adjustment on engine		1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil SO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 1

1. Edition

En

PE8P120A920/5 RS 293

RZU 900 P 2/11 R

supersede
company KHD

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

engine BA 16 M 816

Komb.-Nr. 0 401 948 030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm/rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0- 9,0								
	920	1,0- 4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp: 40 C (104 F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		-	-	-	100	19,5-21,0	-	-
						mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

A15

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A15

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 2

1. Edition

En

PE8P120A920/5 RS 293 RZU 900 P2/12R

supersedes -
company KHD
engine BA 16 M 816

1-6 - 4 -5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

Komb.-Nr. 0 401 948 032

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
②a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 1

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-600 P8A 322 R

supersede

company KHD

engine BA 16 M 816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75 - 90 - 120 - 210 - 225 - 315 - 345° ±0,5° (±0,75°)

Komb.-Nr. 0 401 878 099

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	4,9+0,1	29,0-29,4 (28,7-29,7)	0,5(0,9)			
300	5,9-6,1	2,1-2,7	0,8(1,2)			

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,5	600	14,9-15,0
	x = 4,0						300	5,9-6,1	220	16,2-16,8
ca. 65	13,9	640-650					310-370	= 2,0	350	14,9-15,0
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
Not known! Carry out adjustment on engine	640-650*			100	19,5-21,0 mm RW				

Checking values in brackets

* 1 mm less control rod travel than col 2

5.83

BOSCH

Geschäftsbereich KH Kundendienst Kiz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A17

A17

Testspec 20 413

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 2

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-750 P 9 A 322

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° $\pm 0.5^\circ$ ($\pm 0.75^\circ$)

supersedes

company KHD

BA 16 H 816

engine

Komb.-Nr. 0 401 878 083

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9 \pm 0,1	29,6-30,0 (29,3-30,3)	0,5 (0,9)			
300	6,1-6,3	2,2-2,6	0,8 (1,2)			
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	300	5,7	750	14,9-15,0
		x = 4,0					300	6,1-6,3	280	16,2-16,8
							325-385	=2,0	400	14,9-15,0
ca. 62	13,9	790-800								
2a	4,0	820-850								
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to 1 rev/min		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		790-800*			100	19,5-21,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

Test bench

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 5

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 323 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 084

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	5
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees	Lower rated speed		③ Torque control	
	mm	mm/rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0	with auxiliary spring				300	7,7-8,3	340	1,2-1,8
②a	1030	10,0-12,0					350	4,4-6,0		
	1055	3,8-6,0					500	0 -1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp. 40°C (104°F)		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 343 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 092

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8				50	19,0-21,0	430	0	
	1055	6,0				300	7,7-8,3	340	1,2-1,8	
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0				500	0 -1,0			
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
Not known! Carry out adjustment on engine		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

A20

A20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 4

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 POA 344 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

superseded by KHD
company
engine BA 16 M 816
Komb.-Nr. 0 401 878 093

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) RW $9,0 - 12,0$ mm
($1,95-2,15$)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5 - 21,1	0,8			
600	6,0-6,2	4,1 - 5,3				
600	15,0 \pm 0,1	28,6 - 31,0				
200	6,0-6,2	1,0 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0		
	1030	10,8					50	19,0-21,0			430	0
	1055	6,0					300	7,7-8,3			340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0				
	1055	3,8-6,0					500	0 -1,0				
	1200	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine			1010-1020*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

A21

A21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPF 001/4 KHD 30,4 g

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P 0 A 343 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes
KHD
company BA 12 M 816
Kombi-Nr. 0 401 870 054

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever °	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0		
	1030	10,8							50	19,0-21,0	430	0
	1055	6,0							300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0				
	1055	3,8-6,0							500	0-1,0		
	1200	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104 F)		6 Rotational speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

A22

A22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 g 1

En

1. Edition

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P O A 344 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 055

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDE) RW 9,0-12,0 mm

Testspec 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,6 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0		
	1030	10,8							50	19,0-21,0	430	0
	1055	6,0							300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0				
	1055	3,8-6,0							500	0-1,0		
	1200	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		1010-1020*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a

3. Edition

En

PE8 P 120 A 920/5 RS 293

RSUV 300-750 P9A345R

supersedes 3.78

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 094

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prest. (2,0-2,1
95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
2a	785 800 880	7,4-10,4 4,8- 7,8 0,3- 1,0	with auxiliary spring				50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0 -1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		760-770*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

A24

A24

Test Bench

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 4

1. Edition

En

PE 8 P120 A920/5 RS293 RSUV 300-750 P9 A 346 R

supersedes

company KHD

engine BA16M816

Komb.-Nr. 0 401 878 095

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,1	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0				with auxiliary spring				50 300 350 400

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 C (104 F) rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		760-770*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

B1

B1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5b1

1. Edition

En

Testoil-ISO 4113

PE8P120A920/5RS293

RSUV300-1000 A348R

supersedes

company KHD

engine BA16M816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7 $\pm 0,50$

0 - 75-90-120-210-225-315-345 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Part closing at prestroke $(1,95-2,15)$ mm (from BDC)

Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	10,5-10,6	18,1 - 18,5	0,5(0,9)			
300	6,7-6,9	2,8 - 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 25	300	6,8		
							300	7,2-7,4		
ca. 68		1040-1050=9,5 1060-1090 =4,0 1220=0,3-1,7					340-400	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	1	2	3	4	5	6	7	8	9
	1000	181,0 - 185,0 (178,0 - 188,0)	1040-1050*					300	7,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

1.80

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 40,5c1

2. Edition
En

Testoil-ISO 4113

PE 8 P 120 A 920/5 RS 293

RSUV 300-750 P 9 A 350

supersede 2.80

company

engine KHD

BA 16 M 816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345- + 0,50(0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,00-2,10}{(1,95-2,15)}$ mm (from BDC) Port closing mark cyl. 1

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	10,8-10,9	16,5 - 16,9	0,5(0,9)			
300	6,3-6,5	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca.26	300	5,9	750	10,8-10,9
	X =	4,0					300	6,3-6,5	400	10,8-10,9
⑤ ca.61	790-800=9,8						335-395 =2,0		325	11,7-12,3
	810-840=4,0									
	975=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	165,0-169,0 (162,0-172,0)	790-800*			100	19,5-21,0 mm RW	300	6,4

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.80

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 2

2. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 352

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

superseded by 8.80

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 104

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 5
750	14,9 \pm 0,1	29,5-29,9 (29,2-30,2)	0,5 (0,9)			
300	6,0-6,2	2,0-2,6	0,8 (1,2)			

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			Lower rated speed		3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
loose	800	0,3-1,0 x = 1,75	-	-	-	ca. 21	300	5,6	000	14,9-15,0		
							300	6,0-6,2	280	16,2-16,8		
							325-385	=2,0	400	14,9-15,0		
ca. 65	13,9	1040-1050										
2a	4,0	1065-1095										
	1190	0,3-1,7										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
LDA	0,7 bar	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
1980 by Robert Bosch GmbH Postfach 50 D 7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimerie en République Fédérale d'Allemagne par Robert Bosch GmbH

5.83

Test Specifications

B4

64

D. Adjustment Test for Manifold Pressure Compensator

KHD 40,5 c 2

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)	
PE 2 P..RS 293 +RSUV..POA 352	Carry out adjustment on engine			

Notes
 rev/min and gauge pressure : bar (= maximum full-load control rod travel)

B5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/9 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 024

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDCF RW 9,0 - 12,0 mm)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Testspec 001/4

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	mm
2	3					8	9	10	11	
Full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,5								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104 F)		6 Rotational speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
		-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine								

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

B6

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 30,4 i 3
1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/14 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 027

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) RW $9,0 - 12,0$ mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control lever deflection in degrees	Lower rated speed		③ Torque control			
	Control rod travel mm	Control rod travel mm rev/min	4		5	6	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	750	14,0	-	-	-	-	-	-	-	-
	770	4,8-8,3								
	800	1,0-1,5								
②a	840	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40 C (104 F)		⑥ Rotational speed limit Note changed to 1 rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst Kfz Ausrüstung
1980 by Robert Bosch GmbH Postfach 50 D 7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

B7

57

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 d
1. Edition

En

PE 12 P 120 A 920 RS 294

RS 250/1000 P1/422 R

supersede
company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

engine BA 12 M 816

Komb.-Nr. 0 401 870 060

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC = RW 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
		X = 5,0					250	6,3-6,5	420	16,2-16,8
ca. 58	13,9	1040-1050					390-450 = 2,0		550	14,9-15,0
2a	4,0	1105-1135				150-200				
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
	1040-1050*	-	-	100	19,5-21,0	-	-		
Not known! Carry out adjustment on engine					mm RW				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 30,4 i 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/11 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 025

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDC) RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Test-Bench ISO 4113

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
(2a)	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limit Note changed to 1 rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
		-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine								

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 2

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/12 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 026

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 (1,95-2,15) mm (from BDE) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine	-	-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 e

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-600 P 8 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 061

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (^{2,0-2,1} (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9 \pm 0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,9	600	14,9-15,0
	x = 4,0						300	6,3-6,5	220	16,2-16,8
							310-370	=2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
		640-650*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

B11

B11

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 30,4 h **40**

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-600 P 8 A 322 R

supersedes

company KHD

engine BA 12 M 816

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

Komb.-Nr. 0 401 870 059

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	300	5,9	600	14,9-15,0
	X = 4,0						300	6,3-6,5	220	16,2-16,8
							310-370	= 2,0	350	14,9-15,0
ca.65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	
		640-650 *	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B12

GAZ

TECHNISCHE DATEN

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 b

1. Edition

En

PE12 P120 A 920 RS 294 RSUV 300-750 P9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 062

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers .

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.26	300	5,9	750	14,9-15,0
	X = 4,0						300	6,3-6,5	280	16,2-16,8
							325-385 = 2,0		400	14,9-15,0
ca.62	13,9	790-800								
2a	4,0	820-850								
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop		
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
			790-800*	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B13

BAS

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD
BA 12 M 816
engine Romb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,5(0,9)			
200	6,0-6,2	1,2-2,0	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 31	300	7,5	750	12,0-12,1
	x = 4,0						300	7,9-8,1	450	12,0-12,1
							315-375	=2,0	325	13,2-13,8
ca. 68	11,0	770-780								
2a	4,0	790-820								
	900	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

3A4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f 2

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 323 R

supersedes

company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

engine BA 12 M 816

Komb.-Nr. 0 401 870 063

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) $RW 9,0-12,0$ mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control			
	2 mm	3 mm rev/min	4	5	6		8 rev/min	9 Control rod travel mm	10 rev/min	11 Control rod travel mm		
ca.56	1000	16,0	without auxiliary spring			ca.18	300	8,0	980	0		
	1030	10,8							50	19,0-21,0	430	0
	1055	6,0							300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0				
	1055	3,8-6,0							500	0 - 1,0		
	1200	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
1 rev/min	2 cm ³ /1000 strokes		3	4 rev/min	5 cm ³ /1000 strokes	6 rev/min	7 cm ³ /1000 strokes	8 rev/min
Not known! Carry out adjustment on engine		1010-1020*	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Testspec 413

B15

6A5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 c

1. Edition

En

PE12 P120 A920/5 RS 294

RSU 300/1000 POA 331 R

supersedes -

company KHD

BA 12 M 816

engine Kombin.-Nr. 0 401 870 058

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC) =RW 9,0-12,0 mm

Test Bench 3113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9±0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-		300	6,4	1000	14,9-15,0
	X=						300	6,3-6,5	360	16,2-16,8
2a	13,9	1040-1050					360-400	= 2,0	550	14,9-15,0
	4,0	1130-1160								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
		1040-1050*	-	-	100	19,5-21,0	-	-
Not known! Carry out adjustment on engine						mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f 3

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 343 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 064

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
2a	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0				with auxiliary spring				50 300 350 500

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine			1010-1020*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

B17

B17

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 30,4 F 4
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 PO A 344 R

supersedes

company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

engine BA 12 M 816
Komb.-Nr. 0 401 870 065

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,0-2,1}{(1,95-2,15)}$ mm (from BDC ± RW 9,0-12,0 mm)

Test ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0		430
	1055	6,0	with auxiliary spring				300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0				350	4,4-6,0			
	1055	3,8-6,0				500	0 - 1,0			
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 °C (104 °F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(Not known! Carry out adjustment on engine)		1010-1020	*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B18

EAS

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 345 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 056

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,0-2,1}{(1,95-2,15)}$ mm (from BDCF RW 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
2a	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0	with auxiliary spring				50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0-1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine			760-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

613

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 30,4 b 2
1. Edition

40

En

PE 12 P 120 A 920 RS 294 RSUV 300-750 P 9 A 346 R

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 066

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

TUBISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	750	16,0	without auxiliary spring			ca.31	300	8,0	730	0 ⁵⁾
	770	12,5					50	19,0-21,0	400	0
	800	6,2					300	7,7-8,3	320	1,2-1,8
2a	785	7,4-10,4	with auxiliary spring				350	1,4-4,2		
	800	4,8-7,8					400	0 - 1,0		
	880	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		760-770*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

B20

510

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a2
i. Edition

En

PE12P120A 920/5 RS 294

RSUV 300-750P9 A 346 R

supersedes

company KHD

engine BA12 M 816

Komb.-Nr.0 401 870 057

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	18,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Testspec ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 68	750	16,0	without auxiliary spring			ca. 31	300	8,0	730	0		
	770	12,5							50	19,0-21,0	400	0
	800	6,2							300	7,7-8,3	320	1,2-1,8
2a	785	7,4-10,4	with auxiliary spring				350	1,4-4,2				
	800	4,8- 7,8							400	0 -1,0		
	880	0,3- 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to									
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9			
		760-780*	-	-	100	19,5-21,0	-	-			
Not known! Carry out adjustment on engine						mm RW					

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

B21

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

821

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4f
1. Edition

En

PE12 P120 A920 RS 294 RSUV 300-1000 POA 348 R
1-10-5-7-2-11-6-8-3-12-4-9- je 30° ±0,5° (±0,75°)

supersedes
KHD
company BA 12 M 816
engine
Komb.-Nr. 0 401 870 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control lever deflection in degrees rev/min 8	Control rod travel mm 9		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-	ca. 18	300	5,9	1000	14,9-15,0
		X=1,0					300	6,3-6,5	270	16,2-16,8
ca. 60	13,9	1040-1050					325-385	= 2,0	400	14,9-15,0
2a	4,0	1060-1090								
	1190	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery Idle rev/min 6		cm ³ /1000 strokes 7		5 rev/min 8		4a Idle stop Control rod travel mm 9	
Not known! Carry out adjustment on engine				1040-1050*		-		-		100		19,5-21,0 mm RW		-		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KM Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B22

B22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 b1

1. Edition

En

PE12P120 A 920 RS 294 RSUV 300-750 P9 A 350

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 071

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2- 2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 26	300	5,9	-	-
ca. 62	13,9	790-800					300	6,3-6,5		
2a	4,0	820-850					330-390	= 2,0		
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known!		790-800*	-	-	100	19,5-21,0	-	-	
Carry out adjustment on engine						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale J'Allemagne par Robert Bosch GmbH

6.83

B23

623

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f1

1. Edition

PE12P120 A 920 RS 294 RSUV 300-1000 P 3 A 352 R^{En}

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 068

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9±0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,4-3,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Test Specifications

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 18	300	5,9	1000	14,9-15,0
	X = 1,0						300	6,3-6,5	270	16,2-16,8
ca. 60	13,9	1040-1050					325-385	2,0	400	14,9-15,0
2a	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
		1040-1050*		-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

B24

B24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 750 P 1/9

Komb.-Nr. 0 401 946 024

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
 $(1,95-2,15)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control rev/min	Control rod travel mm
	mm	min rev/min	4	5	6		rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11
Full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known!	Carry out adjustment on engine	750	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

TEST SPECIFICATIONS

C1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WHP 001/4 KHD 15,2 d 1
1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/11
Komb.-Nr. 0 401 946 026

supersedes
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC)
 $(1,95 - 2,15)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Test-Bench 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C2

62

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 c

1. Edition

En

PE 6 P 120 A 420 LS 324 RS 250/1000 P 1/422 R

Komb.-Nr. 0 401 876 221
0 401 821 001

superseded
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Testbenches 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Full	800	0,3-1,0	-	-	-	150-200	250	6,4	1000	14,9-15,0
	x = 5,0						260-320	= 2,0	420	16,2-16,8
VH ca.58									550	14,9-15,0
FH voll	13,9	1040-1050								
2a	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d 2

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/12
Komb.-Nr. 0 401 946 027

supersedes
KHD
company BA 6 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Test: ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 °C (104 °F)		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	Note changed to 1 rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C4

C4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 b

1. Edition

En

PE 6 P 120 A 420 LS 324 RSV 250-1000 P7A 304 R
Komb.-Nr. 0 401 876 226

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
 $(1,95-2,15)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
	x = 5,5						250	6,3-6,5	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine			1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C5

CS

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 a

1. Edition

En

PE 6 P 120 A 420 LS 324 RSUV 250-600 P8A 321 R
Komb.-Nr. 0 401 876 228

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	775	0,3-1,0	-	-	-	ca.26	250	5,9	600	14,9-15,0
	x = 4,0						250	6,3-6,5	270	16,2-16,8
ca.65	13,9	640-650					260-310	= 2,0	350	14,9-15,0
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	8	rev/min 9	Control rod travel mm
		640-650*	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

6.83

C6

CC

Testo 150 4115

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 750 P 1/9

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 028

supersedes
company KHD
engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
 $(1,95-2,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Testo ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40° C (104° F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
	750	-	-	100	19,5-21,0 mm RW	-	-		
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C7

C7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 b

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RS 250/1000 P1/422 R

supersedes KHD
company BA 8 M 816
engine
Komb.-Nr. 0 401 878 097

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke (1,95-2,15) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
		x = 5,0					390-4	50=2,0	420	16,2-16,8
VHca. 58 FH full	13,9	1040-1050				150-200			550	14,9-15,0
2a	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ...	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
not known		040-1050*	-	-	100	19,5-21,0	-	-
Adjust according to		the engine records.				mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2
6,83

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C8

C8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/11

1-4-7-6-8-5-2-3 je 45° ±0,5° (±0,75°)
Komb.-Nr. 0 401 948 031

supersedes

company KHD

engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Test 150 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40° C (104 F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known!	Carry out adjustment on engine	900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

C9

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 2

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/12

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 033

supersedes
KHD
company BA 8 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	920	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 d

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSV 250-1000 P 7 A 304

Komb.-Nr. 0 401 878 089

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -
company KHD
engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	$\begin{matrix} 31,0-31,4 \\ (30,7-31,7) \end{matrix}$	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

TESTS ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever t	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
loose	800	0,3-1,0	-	-	-	ca. 18	250	5,9	1000	14,9-15,0
		$\chi = 4,25$					250	6,3-6,5	300	16,2-16,8
							340-400	= 2,0	450	14,9-15,0
ca. 60	13,9	1040-1050								
2a	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		1040-1050	*	-	100	19,5-21,0	-	-
						mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

C11

CAA

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 c

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 318 R

supersede

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 091

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
 $(1,95-2,15)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,4(0,8)			
250	6,3-6,5	2,2-2,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,9	800	14,9-15,0
	$\chi = 4,0$						250	6,3-6,5	300	16,2-16,8
							280-340	= 2,0	450	14,9-15,0
ca. 56 2a	13,9	840-850								
	4,0	870-900								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational-speed limit Note changed to)		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
		840-850 *	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C12

C 12

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 KHD 20,2 a

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-600 P 8 A 321 R
1-4-7-6-8-5-2-3 je $45^\circ \pm 0,50$ ($\pm 0,75^\circ$)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes -
company KHD
engine BA 8 M 816
Komb.-Nr. 0 401 878 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	28,7-29,1 (28,4-29,4)	0,5(0,9)			
250	6,0-6,2	1,6-2,3 (1,3-2,6)	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	775	0,3-1,0	-	-	-	ca.25	250	5,6	600	14,9-15,0
	X = 4,0						250	6,0-6,2	220	16,2-16,8
							260-320	= 2,0	350	14,9-15,0
ca.65	13,9	640-650								
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		640-650 *	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WP 001/4 KHD 20,2 c 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 347 R

supersedes -
company KHD
engine BA 8 M 816

Komb.-Nr. 0 401 878 101

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
 $(1,95-2,15)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	250	5,9	800	14,9-15,0
		X = 3,0					250	6,3-6,5	300	16,2-16,8
							280-340 = 2,0		450	14,9-15,0
ca. 5	13,9	840-850								
2a	4,0	860-890								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		840-850*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C14

C14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 e

1. Edition

En

PE 6 P 120 A 420 LS 399 RSV 250-1000 P 7 A 460
Komb.-N°. 0 401 876 236

superseded by
company KHD
engine BA 6 H 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Testo 150 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
		x = 5,75					250	6,3-6,5	300	16,2-16,8
							345-405=2,0		450	14,9-15,0
ca. 67 2a	13,9	1040-1050								
	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40° C (104° F)		6 Rotational speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA	0,7 bar	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

6.83

C15

CAS

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 e
2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 920 LS 3060 RQV 300-1250 PA 479 KR

superseded 0.82
company KHD

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 45 - 60 - 105 - 120 - 155 - 180 - 225 - 240 - 285 - 300 - 345[°] +0,5[°] (+0,75[°])

engine: BF 12 L 413 FC
386 kW - 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,7+0,1	14,7 - 15,1	0,4 (0,8)			
300	6,7-6,9	1,6 - 2,2	0,7 (1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,2-0,6
ca. 60	10,7 4,0 1550	1280-1290 1385-1415 0 - 1,0					300 350-500	6,7-6,9	580 920 1250	3,4-3,7 5,3-5,5 8,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,75 bar 147,0-151,0 (145,0-153,0)	1280-1290*	LDA 850	0,75 bar 122,0-126,0 (119,0-129,0)	100	140,0-160,0	1250 850 500	11,7+0,1 11,0+0,1 10,1+0,2
			LDA 500	0 bar 78,0-80,0 (74,0-84,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2



C16

C16

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 12 P..LS 3060 + ..PA 479 KR	0,35	0,75 0 0,22	10,1 - 10,3 10,4 - 10,5 9,0 - 9,2 9,6 - 9,8

Notes

(1): when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 d
2. Edition

En

PE 12P 110 A 920 LS 3060 RQV 300-1250 PA 576 KR
Komb.-Nr. 0 401 840 702
1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 45 - 60 - 105 - 120 - 135 - 180 - 225 - 240 - 285 - 300 - 345° ± 0,5° (±0,75°)

supersedes 9.82
KHD
company:
engine: BF 12 L 413 FC
386 kW / 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8 - 2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	15,2 - 15,6	0,4(0,8)			
300	7,0-7,2	1,8 - 2,4	0,7(1,0)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,3-0,6
ca. 63	11,0 4,0 1550	1290-1300 1390-1420 0 - 1,0					300 350-500	6,7-6,9	580 920 1250	3,5-3,7 5,3-5,5 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,85 bar 152,0-156,0 (150,0-158,0)	1290-1300*	LDA 850	0,85 bar 136,0-140,0 (133,0-143,0)	100	130,0-140,0 bei 13,0-13,2 mm RW	1250 650 500	12,0+0,1 11,2+0,2 11,0+0,2
			LDA 500	0 bar 77,0 - 79,0 (73,0 - 83,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
7.83

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel	diminution
			mm	difference
PE 12 P.. LS 306D + .. PA 576 KR	0,85	0 0,55 0,29	11,1 - 11,2	
			9,1 - 9,2	
			11,0 - 11,1	
			9,4 - 9,6	

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

PE10P110A920/5 LS 3073 RQ300/1150PA535

Komb.-Nr. 0 401 849 702

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

superseded 1.83

company BF10L413F

engine 265kW (360 PS)
/ 2050 min

bzw. 259 kW (352 PS)
/ 2300 min⁻¹
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Ranges and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from .

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

TESTING RANGE

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
700	19,2-20,9	700	20,0	9,7	1195-1205	300	7,0	100	min.8,5	1150	10,7-10,9	800	11,6-11,7	1020	11,5-11,7	1050	11,2-11,4				
VH= max. 46°					1220-1250			300	6,9-7,1					340-380= 2,0							
				1350	0-1,0																

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes / mm 7	
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)					LDA 500	0 bar 85,0-89,0 (82,0-92,0)			100	115,0-140,0		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE10P..LS3073 + .. PA535	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Note:
 (1) when n rev/min and gauge pressure - bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549
 Komb.-Nr. 0 401 849 703
 1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2
 0-27-72-99-144-171-216-288-315° ± 0,5° (± 0,75°)

supersedes 7.83
 company: KHD
 engine: BF 10L 413 F
 265 kW (360 PS)
 / 2050 min⁻¹
 bzw. 259 kW (352 PS)
 (Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8- 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	ca. 24	100 300 465-525 = 2,0	min. 8,4 6,9-7,1	250 550 850 1150	0,5-0,8 3,6-4,2 5,4-5,7 7,8
ca. 64	9,7 4,0 1400	1190-1200 1270-1300 0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200*				100	110,0-140,0	1150 1025 875 800	10,7+0,2 10,9+0,2 11,4+0,2 11,6+0,1
			LDA 500	0 bar 85,0-89,0 (82,0-92,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2
3.84

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 f

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PE 10 P..LS 3073 RQV.. PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes

(1) when n

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 f

1. Edition

En

PE 8 P 120 A 620/4 LS 400 RSV 250-1000 P7A 460

superseded

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 100

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
		x = 5,75					250	6,3-6,5	300	16,2-16,8
							345-405 = 2,0		450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Not known! Carry out adjustment on engine		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C24

C24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 e

3. Edition

En

PF 10 P 110 A 920/5 LS 3073 RQV 300-1250 PA 549-1
Komb.-Nr. 0 401 849 704
1-10- 9- 4- 3- 6- 5- 8- 7- 2
0-72-72-99-144-171-216-243-288-315⁺ 0,5° (+ 0,75°)

supersedes 83

company KHD

engine BF 10 L 413 F
294 KW (400 PS) (1)
265 KW (360 PS) (2)
bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,1+0,1	14,9-15,1	0,4 (0,8)			
300	6,3-6,5	1,1-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca.22	100	min.8,2	250	0,5-0,8
ca.66	11,1	1290-1300					300	6,7-6,9	580	2,9-3,1
	4,0	1370-1400							920	4,8-5,0
	1500	0-1,0				320-500			250	8,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	intermediate speed	high idle speed	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) LDA 1250	0,7 bar 149,0-151,0 (147,0-153,0)	1290-1300*	LDA 900	0,7 bar 144,0-146,0 (142,0-148,0)	100	130,0-150,0 126,0-154,0) =13,0- 13,2 mm RW	-	-
			LDA 500	0 bar 94,0- 96,0 (92,0- 93,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

2.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D1

31

B. Governor Settings

KHD 15,8 e

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) LDA 1250	0,7 bar 135,0-137,0 (133,0-139,0)	1290-1300*	LDA 900 LDA 500	0,7 bar 128,0-131,0 (126,0-133,0) 0 bar 94,0- 96,0 (92,0- 98,0)	100	130,0-150,0 (126,0-154,0) =13,0- 13,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm
PE10P..LS 3073 +ROV ..PA 549-1	0,90	0 0,59 0,51	12,1-12,2 10,1-10,2 11,5-11,6 10,7-10,9

En

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 9,6 b

3. Edition

En

PES 6 P 110 A 720 RS 3079 RSV 300-1150 P 8/486

Komb.-Nr. 0 402 076 714

supersedes 9.83
company KHD
engine F 6 L 413 FRC
199 kW (271 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8 - 2,9} (2,75-2,95) mm (from BDC) RW=9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	14,2+0,1	17,7 - 18,1	0,4(0,8)			
300	7,2-7,3	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 13	300	6,7	1150	14,2+0,1
		x = 2,75							350	15,4+0,6
ca. 48	13,2	1190-1200					300	7,2-7,3	550	14,2+0,1
2a	4,0	1220-1250					300-360	= 2,0		
	1390	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to)		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,9 bar 177,0-181,0 (174,0-184,0)	1190-1200*	LDA 800	0,9 bar 175,0-179,0 (172,0-182,0)	100	190,0-210,0			
			LDA 500	0 bar 123,0-125,0 (120,0-128,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

11.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D3

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 b -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..RS3079 with .. P8/486	0,9	0 0,57 0,30	14,2 - 14,3 11,9 - 12,0 13,8 - 13,9 12,4 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 9,6 a
1. Edition

En

PES 6 P 110 A 720 RS 3079 RSV 300-1250 P 8/486

supersedes -
company KHD
engine BF 6 L 413 FRC
199 kW (271 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	14,5+0,1	18,0 - 18,4	0,4(0,8)			
300	7,2-7,3	1,1 - 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 14	300	6,7	1250	14,5+0,1
ca. 58	x = 4,0						100	min. 20,0	350	15,7+0,6
	13,5	1290-1300					300	7,2-7,3	550	14,5+0,1
2a	4,0	1350-1380					510-570	= 2,0mm		
	1520	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,9 bar 180,0-184,0 (175,0-183,0)	1290-1300*	LDA 800	0,9 bar 167,0-173,0 (164,0-173,0)	100	190,0- 210,0	-	-
			LDA 500	0 bar 123,0-125,0 (119,0-129,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

9.82

D5

25

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 a -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement	Control rod travel: <small>diminution difference</small>
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3079 with ..P 8/486	0,9	0	14,5 - 14,6
		0,57	12,1 - 12,2
		0,30	13,9 - 14,0
			12,8 - 13,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,5 b

En

PE 6 AM 80 B 310 RS21 RQ 250/1075 A 314 D
RS2002 A 386 D

supersedes 3.66
company: KHD
engine: F 6 L 714 A

"diesel" = flap touching
"gasoline" = flap free-standing

(→ A 314 D)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 \pm 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	7,4 - 7,8	0,4			
	9	3,9 - 4,7				
200	15	10,3 - 11,4				
	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
Setting point ①		Test specifications ④				Setting point		Test specifications ⑤		Control rod travel ③			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12		
1050	14,0-14,8	1050	14,4	1100	14,2-14,4	440	0	200	7,4-8,1	400	16,0-16,2		
				1120	4,5-12,6			250	4,8-7,5			600	15,5-15,9
				1140	0 - 9,0			300	0,6-3,8			800	14,5-14,9
				1190	0			340	0				

Torque-control travel on flyweight assembly dimension a = $0,5$ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ -1000 strokes	rev/min	rev/min	cm ³ -1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1050	(Diesel) 72,5 - 74,5	400	800	74,5 - 77,5	100	mind. 9,9
1050	(gasoline) 78,5 - 82,5		600	75,0 - 78,0		

Checking values in brackets

BOSCH

Geschäftsbereich KH, Kundendienst Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D7

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 KHD 1 g 3
7. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 0 B 2168
AOC 2168 L

Komb.-Nr. 0 400 864 054

1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75$)

Symbol S 29

Symbol S 28

supersedes 10.83
company KHD
engine BF 4 L 913
66 kW (90 PS)
/ 2300 min⁻¹
tractor DX 92 (1)
60 kW (82 PS)
/ 2300 min⁻¹
tractor DX 86 (2)
BF 4 L 913 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$ mm (from BDC)
 $(2,45-2,65)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5 - 7,6	
325	7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0 - 1,6	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 29	325	7,3	1150	11,8+0,1
	x =	4,0					100	min. 19,5	500	12,3+0,1
ca. 53	10,8	1190-1200					325	7,7- 7,9	965	12,0+0,2
	4,0	1325-1355					700-760	= 2,0		
2a	1495	0,3 -1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1150	80,5-81,5 (78,5-83,5)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5- 118,5 = RW 16,9 - 17,4mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5, 7a

3. Edition

En

TEST-ISO 4113

VA 6/100 H 1150 BR 45

supersedes 7.77
company KHD
engine F 6L 912

Pre-stroke setting 0,2 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	2, 2-3, 2 mm		
1 2 Supply pump pressure	900	4, 6-5, 1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	52, 0-53, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17, 0-23, 0 cm ³ /1000 strokes		3, 0
1 5 Start	100	mind. 80, 0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	36, 0-44, 0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	580-700 (550-730)	900	1000-1100
	mm	Beginn	(1, 9-3, 5)	3, 7-4, 4 (3, 4-4, 7)
2 2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0, 6-1, 1 (0, 4-1, 3)	(4, 4-5, 3)	5, 7-6, 2 (5, 5-6, 4)
Overflow delivery	rev/min	500		1150
	cm ³ /10 s	mind. 25, 0		55-125 (40-140)
2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1170	(35, 0-45, 0)	
		1100	51, 5-54, 5 (50, 5-55, 5)	
		900	(51, 5-53, 5)	
		600	51, 5-54, 5 (50, 5-55, 5)	
	Stop	1150	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(16, 0-24, 0)	
		100	mind. 80, 0	
End stop	Start	300	max. 20, 0	
		500	max. 45, 0	

D9

BOSCH

Geschäftsbereich KH Kundendienst K12-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 5,5 mm</p> <p>Dimension V = - mm</p> <p>Maß I = 7,0 mm</p> <p>Maß II = 4,5 mm</p> <p>Maß III = 32,8 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7a 2

1. Edition

En

ISO 4113

VA 6/100 H 1150 BR 45-1

supersedes
company **KHD**
engine **F 6 L 912**

Pre-stroke setting **0,2 mm**
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	90 <u>0</u>	2,2-3,2 mm		
1 2 Supply pump pressure	900	4,6-5,1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	52,0-53,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2 1 Timing device	rev/min	580-700 (550-730)	900	1000-1100
	mm	Beginn	(1,9-3,5)	3,7-4,4 (3,4-4,7)
2 2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0,6-1,1 (0,4-1,3)	(4,4-5,3)	5,7-6,2 (5,5-6,4)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	
2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1170	(35,0-45,0)	
		1100	51,5-54,5 (50,5-55,5)	
		900	(51,5-53,5)	
		600	51,5-54,5 (50,5-55,5)	
	Stop	1150	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(16,0-24,0)	
		100	mind. 80,0	
End stop	Start	300	max. 20,0	
		500	max. 45,0	

BOSCH

Geschäftsbereich KH, Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D11

D11

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm Maß I = 7,0 mm Maß II = 4,5 mm Maß III = 32,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7a 1

2. Edition

En

VA 6/100 H 1150 BR 45-2

supersedes ^{7.77}
company **KHD**
engine **F 6 L 912**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre stroke setting **0,2 mm**
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	2,0-3,0 mm		
1.2 Supply pump pressure	900	4,4-4,9 kp/cm ²		
1.3 Full load delivery without charge air pressure	900	57,0-58,0 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 80 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1180	46,0-54,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	610-730 (580-760)	900	1000-1100
	mm	Beginn	(1,7-3,3)	3,7-4,4 (3,4-4,7)
2.2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0,5-1,0 (0,3-1,2)	(4,2-5,1)	5,7-6,2 (5,5-6,4)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1330 (1240-1350)	0	
		1180	(45,0-55,0)	
		1100	56,5-59,5 (55,5-60,5)	
		900	(56,5-58,5)	
		500	62,0-65,0 (61,0-66,0)	
	Stop	1150	0	
Idle stop	Full	500-570 (480-590)	0	
		300	(16-24)	
		100	mind. 80,0	
End stop	Start	200	mind. 80,0	

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D13

D13

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension \varnothing 1,5 mm Dimension φ - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5, 7a 3

1. Edition

En

Testoil-ISO 4113

VA 6/100 H 1150 BR 45-3

supersedes

company **KHD**

engine **F6L 912**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting **0,2** mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	2-3 mm		
1.2 Supply pump pressure	900	4, 4-4, 9 kp/cm ²		
1.3 Full load delivery without charge air pressure	900	57-58 cm ³ /1000 strokes		2,5
Full load delivery with charge air pressure		cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17-23 cm ³ /1000 strokes		
1.5 Start	100	mind. 80 cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	1180	46-54 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	610-730 (580-760)	900	1000-1100
	mm	Beginn	(1, 7-3, 3)	3, 7-4, 4 (3, 4-4, 7)
2.2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0, 5-1, 0 (0, 3-1, 2)	(4, 2-5, 1)	5, 7-6, 2 (5, 5-6, 4)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge air pressure kp/cm ²
End stop	Full	1260-1330 (1240-1350)	0	
		1180		(45-55)
		1100	56, 5-59, 5	(55, 5-60, 5)
		900		(56, 5-58, 5)
		500	62-65	(61-68)
	Stop	1150	0	
Idle stop	Full	500-570 (480-590)	0	
		300		(16-24)
		100	mind. 80, 0	
End stop	Start	200	mind. 80, 0	

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D15

945

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension \bar{V} 1,5 mm Dimension \bar{V} - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 3,8a

3. Edition

En

Testoil-ISO 4113

VA 4/110 H 1400 BR 50
BR 50-1

supersedes **12.74**
company **KHD**
engine **F 4 L 912-80 PS**

Pre-stroke setting **0,2** mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,8-6,8 mm		
1.2 Supply pump pressure	1000	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	60,0-61,0 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1.6 Full load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	430-560 (400-590)	1000	1250-1370
	mm	Beginn	(5,6-7,0)	9,7-10,4 (9,4-10,7)
2.2 Supply pump	rev/min	100	1000	1400
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,6-5,5)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1520-1650 (1500-1670)	0	
		1580	max. 5,0	
		1460	(35,0-45,0)	
		1350	55,0-58,0 (54,0-59,0)	
		1000	(59,5-61,5)	
		500	53,0-56,0 (52,0-57,0)	
	Stop	1400	0	
Idle stop	Full	290-340 (270-360)	0	
		250	(8,0-16,0)	
		100	mind. 110,0	
End stop	Start	mind. 200		

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D17

317

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 3,8a 2

1. Edition

En

110
100
90
80
70
60
50
40
30
20
10
0

VA 4/110 H 1400 BR 50-3
BR 50-5

supersedes

company **KHD**

engine **F 4 L 912-72 PS**

Pre stroke setting **0,2 mm**
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
11 Timing device travel	1000	5,8-6,8 mm		
12 Supply pump pressure	1000	4,8-5,3 kp/cm ²		
13 Full load delivery without charge air pressure	1000	51,0-52,0 cm ³ /1000 strokes		
Full load delivery with charge air pressure	--	-- cm ³ /1000 strokes		
14 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		
15 Start	100	mind. 110,0 cm ³ /1000 strokes		
16 Full load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

21 Timing device	rev/min	430-560 (400-590)	1000	1250-1370
	mm	Beginn	(5,5-7,1)	0
22 Supply pump	rev/min	100	1000	1400
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,6-5,5)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min			
	cm ³ /10 s			

23 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1520-1580 (1500-1600)	0	
		1460		(35,0-45,0)
		1380	43,0-46,0	(42,0-47,0)
		1000		(50,5-52,5)
		500	42,0-45,0	(41,0-46,0)
	Stop	1400	0	
Idle stop	Full	290-340 (270-360)	0	
		250		(8,0-16,0)
End stop	Start	100	mind. 110,0	
		500	30,0-42,5	(29,0-43,5)
		mind. 200		

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d
2. Edition
En

VA 6/100 H 1050 CR 168
0 460 306 159

supersedes S. 72
company KHD
engine F 6 L 912

Pre-stroke setting $0,2 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	1,2-2,2 mm		
1.2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1.3 Full load delivery without charge-air pressure	1020	49,0-50,0 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full load speed regulation	--	-- cm ³ /1000 strokes		

2. Test Specifications Checking values in brackets

2.1 Timing device	rev/min	500-650 (470-680)	800	900-1050
	mm	Beginn	(0,9-2,5)	2,4-3,1 (2,1-3,4)
2.2 Supply pump	rev/min	200	800	1050
	kp/cm ²	1,0-1,5 (0,8-1,7)	(3,8-4,7)	4,9-5,4 (4,7-5,6)
Overflow delivery	rev/min	500		1050
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1130-1180 (1110-1200)	0	
		1060-1080	Beginn	
		1020	(48,5-50,5)	
		800	46,5-48,5 (45,5-49,5)	
		500	52,5-55,5 (51,5-56,5)	
	Stop	1050	0	
Idle stop	Full	400-460 (380-480)	0	
		300	(11,0-19,0)	
	Start	100	mind. 90,0	
End stop		150-250		

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension \bar{v} 2,6 mm Dimension \bar{v} 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d 1

1. Edition

En

VA 6/100 H 1150 CR 168-1
0 460 306 160

supersedes
company **KHD**
engine **F 6 L 912**

Pre-stroke setting $0.2 \text{ mm} + 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	1,2-2,2 mm		
1 2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1 3 Full-load delivery without charge air pressure	900	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1190	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500-650(470-680)	800	900-1050
	mm	Beginn	(0,9-2,5)	2,4-3,1(2,1-3,4)
2 2 Supply pump	rev/min	200	800	1050
	kp/cm ²	1,0-1,5(0,8-1,7)	(3,8-4,7)	4,9-5,4(4,7-5,6)
Overflow delivery	rev/min	500		
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1260	0	
		(1200-1280)		
		1190	(25,0-35,0)	
		1160-1180	Beginn	
		1130	57,0-60,0 (57,0-59,0)	
		900	(57,0-59,0)	
		500	59,5-62,5 (58,5-63,5)	
	Stop	1150	0	
Idle stop	Full	400-460	0	
		(380-480)		
		300	(11,0-19,0)	
	Start	100	mind. 90,0	
End stop		150-250		

161-190-413

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D23

023

Angle to the stop plate	Pre-setting dimensions
<p>Pump</p> <p>" = $25 \pm 4^\circ$</p> <p>β = $52 \pm 8^\circ$</p> <p>γ = $30 - 8^\circ$</p> <p>α = $60 + 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 2,6 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d 2

1.. Edition

En

Testoil-ISO 4113

VA 6/100 H 1150 CR 168-2
0 460 306 208

supersedes
company **KHD**
engine **F 6L 912**

Pre-stroke setting $0,2 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	1,2-2,2 mm		
1 2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1 3 Full load delivery without charge air pressure	900	57,5-58,5 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start (autom.)	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1190	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500-650(470-680)	700	800	900-1050
	mm	Beginn	0,6-1,6(0,3-1,9)	(0,9-2,5)	2,3-3,1(2,0-3,4)
2 2 Supply pump	rev/min	200		800	1150
	kp/cm ²	1,0-1,5(0,8-1,7)		(3,8-4,7)	5,2-5,7(5,0-5,9)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1260	0	
		(1200-1280)		
		1190	(25,0-35,0)	
		1160-1180	Beginn	
		1130	57,0-60,0 (56,0-61,0)	
		900	(57,0-59,0)	
Stop	Full	500	59,5-62,5 (58,5-63,5)	
		1150	0	
Idle stop	Full	400-460	0	
		(380-480)		
		300	(11,0-19,0)	
End stop	Start	100	mind. 90,0	
		150-250		

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 52 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 + 8^\circ$</p>	<p>Pump</p> <p>Dimension \mathcal{W} 2,6 mm</p> <p>Dimension \mathcal{V} 24,6 mm</p>

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 Vol 3,6f
2. Edition

En

Testoil-ISO 4113

VE 6/11 F 1800 L 19-5

0 460 416 012 Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

superseded by 0.82

company Volvo

engine T AMD 40-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,8-3,2 mm		
1 2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1500	75,0-76,0 cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1950	34,0-42,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	--	--		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,9-1,7(0,6-2,0)	1500 (2,3-3,7)	1800 3,7-4,5(3,4-4,8)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,3-2,9		1800 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111(40-126)		1800 55-111(40-126)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge air press bar (kgf/cm ²)
End stop	2100	max.8,0	
	1950	(33,5-42,5)	
	1770	72,0-74,4 (70,9-75,5)	
	1500	(73,2-77,8)	
	600	62,0-67,0 (61,5-67,5)	
switch-off	1800	0	
Idle stop	500-580	0	
	350	(16,0-24,0)	
End stop	100-120	min.70	
	220	max.65	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	--
KF	5,9-6,1
MS	1,4-1,6
SVS	max.3,6
XK	18,7-20,7
XL	10,9-14,2

Observations

2 4 Solenoid

max cut-in voltage min. 10 V
rated voltage 12V.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PER 5,8b
2. Edition

En

Testoil-ISO 4113

VE 6/12 F 1300 L 21

0 460 426 001

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A". **Overflow temperature 45° C**

supersedes 2.82
company Perkins
engine T 6.354.4

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04) mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	600	3,6-4,2 mm	0,67	
1 2 Supply pump pressure	600	3,6-4,6 bar (kgf/cm ²)	0,67	
1 3 Full-load delivery without charge-air pressure	500	78,0-83,0 cm ³ /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1000	96,5-97,5 cm ³ /1000 strokes	0,67	
1 4 Idle speed regulation	270	8,0-12,0 cm ³ /1000 strokes	0	2,5(3,0)
1 5 Start	100	min.100,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	1480	42,0-50,0 cm ³ /1000 strokes	0,67	
1 7 Load-dependent start of delivery	--	--		

2. Test Specifications

		checking values in brackets ()	
2 1 Timing device LDA = 0,67 bar	n rev/min mm	400 1,6-2,6(1,4-2,8)	600 (3,2-4,6)
2 2 Supply pump LDA = 0,67 bar	n rev/min bar (kgf/cm ²)	400 2,8-3,8	800 4,3-5,3
Overflow delivery	n rev/min cm ³ /10 s	500 55-111(40-126)	1300 55-111(40-126)
2 3 Fuel deliveries			
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1550	3,0-11,0 (2,0-12,0)	0,67
	1480	(41,0-51,0)	0,67
	1300	88,5-92,5 (88,2-92,8)	0,67
	1000	89,0-93,0 (88,7-93,3)	0
	1000	(94,7-99,3)	0,67
	* 700	89,0-94,0 (89,2-93,8)	0,32
500	(77,5-83,5)	0	
switch-off mech.	500	0	
Idle stop	330-380 270	0 (6,0-14,0)	
End stop	100 100	min.100 max.80	
2 4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

Designation	for assembly and adjustment mm
K	--
KF	5,2-5,4
MS	1,7-1,9
SVS	max. 3,9
A	2,6-7,6
B	10,4-15,6

Observations
Manifold-pressure
compensator stroke
= 4,0 mm
Correction at the
adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/12 F 1250 R 38 (P)
0 460 426 007

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 10.83
company: IHC
engine: DT 402/3994

**

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,4 mm ± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1000	3,5-4,1 mm		
1 2 Supply pump pressure	1000	5,3-5,9 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	900	112,0-113,0 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		3,5 (4,5)
1 4 Idle speed regulation	500	15,0-21,0 cm ³ /1000 strokes		
1 5 Start	100	min. 95,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	56,0-64,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min mm	600 1,3-2,1 (1,0-2,4)	1000 (3,1-4,5)	1200 4,6-5,4 (4,3-5,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	400 3,6-4,2	1250 6,0-6,6	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

2 3 Fuel deliveries			
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1420	max. 1,0	
	1370	min. 1,0	
	1300	(55,0-65,0)	
	1230	105,5-108,5 (104-110)	
	900	(109,5-115,5)	
	700	99,0-103,0 (97,3-104,7)	
	500	82,0-86,0 (80,3-87,7)	
switch-off	1250	0	
Idle stop	570	max. 1,0	
	520	min. 1,0	
	500	(13,0-23,0)	
End stop	280	min. 105	
	380	max. 105	
2 4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions for assembly and adjustment mm

Designation	mm
K	-
KF	5,4-5,6
MS	0,8-1,0
SVS	4,6-6,0
A XK	20,2-22,2
B XL	9,6-12,9

Observations
** Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/9 F 2250 R 41
0 460 494 027

Overflow temperature 45° C

1.84
superseded by Renault
company 852
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting --- mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm ²)		2,5 (3,0)
1.3 Full-load delivery with charge-air pressure	1400	38,0-39,0 cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle regulation	400	7,5-11,5 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400	--		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9-4,5		2000 6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550	max. 2,0	
	2400	(16,0-24,0)	
	2200	31,0-33,0 (29,8-34,2)	
	2100	32,5-34,5 (31,2-35,8)	
	1400	(36,3-40,7)	
	1000	35,3-38,3 (33,8-39,8)	
switch-off	2250	0	
Idle stop	650	max. 5,0	
	400	(5,5-13,5)	
End stop	320	min. 45,0	
	430	max. 45,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V test voltage xxx rated voltage 12V.		

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,5
A XK	20,1-22,1
B XL	9,5-13,3

Observations

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/10 F 1500 R 42

0 460 404 007

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".
Overflow temperature 45° C

supersedes
company MAN
engine D 0224 M

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04) mm

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1000	5,3-5,7 mm		
1 2 Supply pump pressure	1000	5,5-6,1 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1000	61,5-62,5 cm ³ /1000 strokes		2,5 (3,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	10,0-14,0 cm ³ /1000 strokes		2,5 (3,5)
1 5 Start	100	min. 60,0 cm ³ /1000 strokes		
1 6 Full load speed regulation	1650	7,0-13,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	600 2,6-3,4 (2,3-3,7)	1000 (4,8-6,2)	1400 7,6-8,4 (7,3-8,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,6-4,2		1500 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110 (40-125)		1500 55-110 (40-125)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1700-1800	0	
	1650	(5,5-14,5)	
	1550	max. 60,0	
	1500	68,5-71,5 (67,35-72,65)	
	1000	(59,35-64,65)	
switch-off	600	57,25-60,75 (55,6-62,4)	
	1500	0	
Idle stop	380-430	0	
	350	(7,5-16,5)	
2 4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,7-5,9
MS	1,3-1,5
svs	max. 2,0
A XK	18,6-20,6
B XL	9,7-13,5

Observations

pushing electro-magnet 24 V

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 6/12 F 1100 R 52 Overflow temperature 45° C

O 460 426 011

DHK: 1 688 901 1120

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

supersedes
company IHC
engine: D 358

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	700	4,5-4,9 mm	0,8	
1.2 Supply-pump pressure	700	5,7-6,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	800	94,0-95,0 cm ³ /1000 strokes	0,8	3,5 (4,0)
Full-load delivery without charge-air pressure	500	73,0-77,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	380	16,0-20,0 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	1200	16,0-24,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min: 90 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	400	700	900
IDA 0,8 bar	mm	1,7-2,5 (1,4-2,8)	(4,0-5,4)	5,8-6,6 (5,5-6,9)
2.2 Supply pump	n = rev/min	400	1100	
IDA 0,8 bar	bar (kgf/cm ²)	4,5-5,1	6,9 - 7,5	
Overflow delivery	n = rev/min	500 (0 bar)	1100 (0,8 bar)	
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1260	max. 1,5 (15,0-25,0)	0,8
	1200		0,8
	1170	57,0-63,0(57,0-63,0)	0,8
	1080	86,8-89,2(85,0-91,0)	0,8
	800	(91,5-97,5)	0,8
	*500	83,0-86,0(80,8-88,2)	0,33
	500	(71,3-78,7)	0
switch-off	1100	0	
Idle stop	480	max. 1,5 min. 2,0 (13,0-23,0)	
	400		
	380		
End stop	380	min. 75 max. 75	
	450		
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions for assembly and adjustment mm

Designation	mm
K	-
KF	5,4-5,6
MS	1,3-1,5
SVS	max. 6,0
X ^A XK	20,2-22,2
X ^B XL	10,2-13,5

Observations
* Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (46)

Test Specifications

Distributor-type Fuel-injection Pumps

VE 4/9 F 2400 R 66-14
 (1 460 494 118

supersedes 1.83
 company: VWV
 engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting - mm

Testoil-ISO 4113

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,3-2,7 mm		
1 2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1500	31,5-32,5 cm ³ /1000 strokes		3,0
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1 4 Idle speed regulation	450	6,0-10,0 cm ³ /1000 strokes		3,0
1 5 Start	100	min. 38,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,7-1,5(0,4-1,8)	1500 (1,8-3,2)	2400 5,5-6,3(5,2-6,6)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,8-3,4		2400 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2800	max. 2,5	
	2600	(10,0-18,0)	
	2400	26,5-28,5 (25,2-29,8)	
	1500	(29,7-34,3)	
	600	19,5-22,5 (18,0-24,0)	
switch-off elektr.	400	0	
	2400	0	
Idle stop	1200	max. 6,0	
	600	max. 7,0	
	450	(4,0-12,0)	
End stop	400	min. 15,5	
	500	max. 21,5	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	
A XK	18,4-20,4
B XL	10,0-13,4

Observations

2 4 Solenoid	max cut-in voltage XXXXXX	xxx min. 10 V rated voltage 12V.
--------------	------------------------------	-------------------------------------

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/10 F 2100 L 75-1
0 460 404 034

Overflow temperature 45° C

supersedes
company: VM-Motorri
engine: HR 492 HT

Test Specifications

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Pre-stroke setting: mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1600	5,3 - 5,7 mm	0,8	
1.2 Supply-pump pressure	1600	5,8 - 6,4 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1600	47,5-48,5 cm ³ /1000 strokes	0,8	max. 3,0
Full-load delivery without charge-air pressure	600	35,0-36,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	15,0-19,0 cm ³ /1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2300	24,5-30,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 50 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1000 1,7-2,5 (1,4-2,8)	1600 (4,8-6,2)	2100 7,6-8,6 (7,5-8,9)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm ²)	400 1,5-2,1		2100 7,5-8,1
Overflow delivery	n = rev/min cm ³ /100 s	400 55-138 (40-153)		2100 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 5,0	0,8
	2300	(23,5-31,5)	0,8
	2100	41,5-44,5 (40,8-45,2)	0,8
	1600	31,5-34,5 (30,8-35,2)	0
	1600	(45,8-50,2)	0,8
	* 700	43,5-45,5 (42,3-46,7)	0,3
	600	(33,3-37,7)	0
switch-off			
Idle stop	550	max. 2,0	
	450	min. 2,0	
	400	(13,0-21,0)	
End stop	400	min. 45	
	500	max. 37	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,3
KF	5,7-5,9
MS	0,7-0,9
SVS	3,8
^A XX	20,2-22,2
B	
XL	10,3-13,6

Observations

* Manifold-pressure compensator stroke = 4,2 mm
Correction at the adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VW 1,6 V 10

1. Edition

En

VE 4/9 F 1500 R 85-6
0 460 494 120

Overflow temperature 45° C

supersedes VW
company: 068
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1000	1,3-1,7 mm		
1 2 Supply-pump pressure	1000	3,8-4,4 bar (kgf/cm ²)		
1 3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1480	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
1 4 Idle regulation	425	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1 5 Full-speed regulation	1620	16,0-21,0 cm ³ /1000 strokes		
1 6 Start	100	min. 35,0 cm ³ /1000 strokes		
1 7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min	1000	1480
	mm	(0,8-2,2)	3,3-4,1 (3,0-4,4)
2 2 Supply pump	n = rev/min	600	1480
	bar (kgf/cm ²)	2,8-3,4	4,9-5,3
Overflow delivery	n = rev/min	600	1480
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)

2 3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop		1730	max. 4,0 (15,0-23,0) (30,8-35,2) 21,0-24,0(19,5-25,5)	
		1620		
		1480		
		600		
switch-off elektr.		400	0	
Idle stop		525	max. 3,0 (4,0-12,0)	
		425		
End stop		400	min. 17,5 max. 23,0	
		500		

3. Dimensions for assembly and adjustment

Designation	mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	5,8
A	
B	

Observations

2 4 Solenoid	max. cut-in voltage xxx min. 10 V test voltage xxxxxx rated voltage 12V.
--------------	---

E11

E11

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/11 F 1900 L 111
0 460 414 006

supersedes 8.83
company Volvo-Penta
engine TAMD 8199 B-110 PS

En

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460/

Test bench 4113

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,6-3,0 mm		
1 2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1000	71,5-72,5 cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1 4 Idle speed regulation	325	26,0-30,0 cm ³ /1000 strokes		3,5
1 5 Start	100	min. 80 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2100	19,0-27,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)	1850 3,6-4,4(3,3-4,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,2-3,8		1850 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1900 55-138(40-153)

2 3 Fuel deliveries			
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2200	max. 7,0	
	2100	(18,5-27,5)	
	2000	42,0-48,0 (40,5-49,5)	
	1850	70,5-73,5 (69,4-74,6)	
	1000	(69,4-74,6)	
	600	64,5-68,5 (63,1-69,9)	
switch-off			
Idle stop	325	(23,5-32,5)	
	450	max. 3,0	
End stop	350	min. 70	
	450	max. 70	
2 4 Solenoid	max cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions for assembly and adjustment mm

Designation	mm
K	-
KF	5,8
MS	1,3
SVS	3,4
AXK	20,2-22,2
BXL	12,8-16,8

Observations

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 o

1. Edition

En

VE 4/10 F 2075 R 112
0 460 404 027

Overflow temperature 45° C

DHK: 1688 90! 022
Test pressure line
6x2x450 mm / 1 680 750 073

supersedes Peugeot
company: XD 2 S - USA
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	4,8-5,2 mm	0,8	
1 2 Supply-pump pressure	1500	5,4-6,0 bar (kgf/cm ²)	0,8	
1 3 Full-load delivery with charge-air pressure	1125	44,2-45,2 cm ³ /1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	37,3-38,3 cm ³ /1000 strokes	0	2,5(3,0)
1 4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5(3,5)
1 5 Full-speed regulation	2400	9,5-15,5 cm ³ /1000 strokes	0,8	
1 6 Start	100	min. 53 cm ³ /1000 strokes	0	
1 7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min	600	1000	1500	2000
LDA 0,8 bar	mm	1,0-1,8 (0,7-2,1)	2,7-3,3 (2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2 2 Supply pump	n = rev/min	400		2075	
LDA 0,8 bar	bar (kgf/cm ²)	1,6-2,2		7,6-8,2	
Overflow delivery	n = rev/min	500 (0 bar)		2075 (0,8 bar)	
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)	

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2450	max. 9,0	0,8
	2400	(8,5-16,5)	0,8
	2300	24,5-32,5 (24,5-32,5)	0,8
	2000	45,0-47,4 (44,0-48,4)	0,8
	1400	45,3-47,7 (44,3-48,7)	0,8
	1125	(42,5-46,9)	0,8
	*750	41,6-42,6 (39,9-44,3)	0,25
	600	(35,6-40,0)	0
switch-off			
Idle stop	450-550	0	
	390	(6,0-14,0)	
End stop	400	min. 50	
	500	max. 50	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
X K	20,2-22,2
X L	8,8-12,1

Observations

Please note instructions on sheet 2.

2 4 Solenoid

max. cut-in voltage XXX min. 10 V
rated voltage 12V.

Test hydr. cold-start accelerator:

Apply 12 V to magnet of hydr. cold-start accelerator.
500 1/min 2,2 - 3,4 (2,1 - 3,5) mm.

* Manifold-pressure compensator stroke = 4,5 mm

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/10 F 2125 R 112-1 Overflow temperature 45° C
 0 460 404 028
 DHK: 1688 901 022; Test pressure line
 6x2x450 mm / 1 680 750 073

supersedes Peugeot
 company: XD 2 S
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	4,8 - 5,2 mm	0,8	
1 2 Supply-pump pressure	1500	5,4 - 6,0 bar (kgf/cm ²)	0,8	
1 3 Full-load delivery with charge-air pressure	1125	44,2-45,2 cm ³ /1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	37,3-38,3 cm ³ /1000 strokes	0	2,5 (3,0)
1 4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5 (3,5)
1 5 Full-speed regulation	2450	9,5-15,5 cm ³ /1000 strokes	0,8	
1 6 Start	100	min: 53,0 cm ³ /1000 strokes	0	
1 7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	600	1000	1500	2000
LDA 0,8 bar	mm	1,0-1,8 (0,7-2,1)	2,7-3,3 (2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2.2 Supply pump	n = rev/min	400			2075
LDA 0,8 bar	bar (kgf/cm ²)	1,6-2,2			7,6-8,2
Overflow delivery	n = rev/min	500 (0 bar)			2125 (0,8 bar)
	cm ³ /10 s	55-138 (40-153)			55-138 (40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500	max. 9,0	0,8
	2450	(8,5-16,5)	0,8
	2350	23,0-31,0 (23,0-31,0)	0,8
	2050	45,0-47,4 (44,0-48,4)	0,8
	1400	45,3-47,7 (44,3-48,7)	0,8
	1125	(42,5-46,9)	0,8
	*750	41,6-42,6 (39,9-44,3)	0,25
	600	(35,6-40,0)	0
switch-off			
Idle stop	450-550	0	
	390	(6,0-14,0)	
End stop	400	min. 50	
	500	max. 50	
2.4 Solenoid	max. cut-in voltage xx min. 10 V rated voltage 12V.		

3. Dimensions for assembly and adjustment

Designation	mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
AK K	20,2-22,2
BX L	8,9-12,2

Observations
 Please note instructions on sheet 2.

Test hydr. cold-start accelerator:

Apply 12 V to magnet of hydr. cold-start accelerator.
500 1/min 2,2 - 3,4 (2,1 - 3,5) mm.

* Manifold-pressure compensator stroke = 4,5 mm

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/10 F 2400 L 116

0 460 406 018

supersedes 12.83

company VWV

engine 087 - T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

- mm

see VDT-W-460/

0 460 406 018

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	1,4-1,8 mm	0,75	
1 2 Supply pump pressure	1500	5,7-6,3 bar (kgf/cm ²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	26,5-27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge air pressure	1500	44,0-45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	415	6,0-10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2 1 Timing device LDA=0,75 bar	n = rev/min mm	1200 0,2-1,0(0-1,3)	1500 (0,9-2,3)	2400 4,1-4,9(3,8-5,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm ²)	600 3,3-3,9		2400 7,8-8,4
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 (0,75 bar) 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2825	max. 6,0	0,75
	2675		0,75
	2400	35,5-37,5 (9,0-17,0)	0,75
	1500	(34,2-38,8)	0,75
	800 *	(42,2-46,8)	0,75
switch-off elektr.	600	33,5-34,5 (31,0-37,0)	0,30
		(24,0-30,0)	0
Idle stop	415	(4,0-12,0)	
End stop	750	max. 3,0	
	400	min. 20,0	
	500	max. 30,0	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
KK	21,8-23,8
KL	9,4-12,7

Observations
* Manifold-pressure compensator stroke = 4,2 mm
Correction at the adjusting nut. (46)

2 4 Solenoid	max cut-in voltage xxx min. 10 V rated voltage 12V.
--------------	--

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/10 F 2400 L 116-1
0 460 406 019

supersedes 12.83
company VWV
engine 087 - T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/

TESTING 4113

Pre-stroke setting - mm

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	1,4-1,8 mm	0,75	
1 2 Supply pump pressure	1500	5,7-6,3 bar (kgf/cm ²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	26,5-27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	415	6,0-10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2 1 Timing device LDA=0,75 bar	n - rev/min mm	1200 0,2-1,0(0-1,3)	1500 (0,9-2,3)	2400 4,1-4,9(3,8-5,2)
2 2 Supply pump LDA=0,75 bar	n - rev/min bar (kgf/cm ²)	600 3,3-3,9		2400 7,8-8,4
Overflow delivery	n - rev/min cm ³ /10 s	600 55-138(40-153)		2400 (0,75 bar) 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2825	max. 6,0	0,75
	2675		0,75
	2400	35,5-37,5 (34,2-38,8)	0,75
	1500	(42,2-46,8)	0,75
	800 *	33,5-34,5 (31,0-37,0)	0,30
	600	(24,0-30,0)	0
switch-off mech. elektr.	2400	0	
	400	0	
Idle stop	415		
	750	max. 3,0 (4,0-12,0)	
End stop	400	min. 20	
	500	max. 30	

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
AK	21,8-23,8
KL	9,4-12,7

Observations

* Manifold-pressure
compensator stroke
= 4,2 mm
Correction at the
adjusting nut. (46)

2 4 Solenoid

max. cut-in voltage xxx min. 10 V
rated voltage 12V.

Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/9 F 2400 R 138

0 460 494 131

supersedes 12.83
company VWV
engine 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9 - 3,3	mm	
1 2 Supply pump pressure	1500	4,3 - 4,9	bar (kgf/cm ²)	
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm ³ /1000 strokes	2,5 (3,0)
Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
1 4 Idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes	2,0 (3,0)
1 5 Start	100	min. 35,0	cm ³ /1000 strokes	
1 6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes	
1 7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n : rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)
2 2 Supply pump	n : rev/min bar (kgf/cm ²)	600 2,2-2,8		2400 6,4-7,0
Overflow delivery	n : rev/min cm ³ /10 s	600 55-138 (40-153)		2400 55-138 (40-153)

2 3 Fuel deliveries	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
Speed control lever			
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 27,5-29,5(26,3-30,7) (31,3-35,7) 21,5-24,5(20,0-26,0)	
switch-off elektr.	400	0	
Idle stop	475 650 1200	(4,0-12,0) max. 7,5 max. 5,0	
End stop	400 500	min. 18,0 max. 23,5	
2 4 Solenoid	max cut-in voltage test voltage	min 10,0 V rated voltage 12V.	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	2,7
* FH	1,8-2,4
A	
B	
Observations	
*operating stroke (KSB)	

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2250 R 158
0 460 494 145

Overflow temperature 45° C

superseded by 0.84
company Renault
engine: J85-706

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm ²)		2,5 (3,0)
1.3 Full-load delivery with charge-air pressure	1400	38,0-39,0 cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle regulation	400	7,5-11,5 cm ³ /1000 strokes		2,5(3,0)
1.5 Full-speed regulation	2400	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4(2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9-4,5		2000 6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 (16,0-24,0) 31,0-33,0(29,8-34,0) 32,5-34,5(31,2-35,8) (36,3-40,7) 35,3-38,3(33,8-39,8)	
switch-off	2250	0	
Idle stop	650 400	max. 5,0 (5,5-13,5)	
End stop	320 430	min. 45,0 max. 45,0	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,6
AK	
XL	

Observations

2.4 Solenoid max. cut-in voltage xx min. 10 V
rated voltage 12V.

Test Specifications Distributor-type Fuel-injection Pumps

En

Testbenches

VE 6/12 F 1250 R 159
0 460 426 035

Overflow temperature 45° C

supersedes
company: Cummins
engine: 6 BT-590

DHK 1688 901 016/207 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kg/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	750	3,1-3,5 mm		
1 2 Supply-pump pressure	750	3,6-4,2 bar (kg/cm ²)		
1 3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1100	80,0-81,0 cm ³ /1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	22,0-28,0 cm ³ /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1300	54,5-62,5 cm ³ /1000 strokes		
1 6 Start	100	min. 97 cm ³ /1000 strokes		
1 7 Load-dependent port-closing	-	-		

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min mm	500 1,1-1,9 (0,8-2,2)	750 (2,6-4,0)	1100 5,0-5,8 (4,7-6,1)
2 2 Supply pump	n = rev/min bar (kg/cm ²)	500 2,5-3,1		1100 5,1-5,7
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kg/cm ²)
End stop	1390	max. 1,5	
	1300	(53,5-63,5)	
	1250	75,0-78,0 (73,5-79,5)	
	1100	(77,5-83,5)	
	750	84,5-88,5 (83,5-89,5)	
	500	81,5-85,5 (79,8-87,2)	
switch-off	1250	0	
Idle stop	450	max. 1,5	
	375	(20,0-30,0)	
	300	45,0-53,0 (44,0-54,0)	
End stop	130	min. 97,0	
	200	max. 85,0	

3. Dimensions

for assembly and adjustment mm

Designation	Dimensions
K	-
KF	5,1-5,3
MS	1,4-1,6
SVS	1,2
✕ XK	20,2-22,2
✕ XL	11,0-14,4

Observations

2 4 Solenoid max. cut-in voltage xxx min. 10 V
test voltage xxx rated voltage 12V.

Test Specifications Distributor-type Fuel-injection Pumps

VE 3/11 F 1250 L 163
0 460 413 001
DHK: 1 688 901 020

Overflow temperature 45° C

supersedes Fiat - /veco
company 8035
engine

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	800	2,5-2,9 mm		
1 2 Supply pump pressure	800	3,8-4,4 bar (kgf/cm ²)		
1 3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	72,7-73,7 cm ³ /1000 strokes		3,5 (4,0)
1 4 Idle regulation	350	21,0-25,0 cm ³ /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1400	12,0-18,0 cm ³ /1000 strokes		
1 6 Start	100	min. 80 cm ³ /1000 strokes		
1 7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min mm	600 0,8-1,6 (0,5-1,9)	800 (2,0-3,4)	1200 5,6-6,4 (5,3-6,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0-2,6		1200 5,5-6,1
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		1250 55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1460	max. 1,0	
	1400	(10,5-19,5)	
	1350	41,5-48,5 (40,5-49,5)	
	1250	73,1-76,1 (72,0-77,2)	
	800	(70,6-75,8)	
	500	61,0-64,0 (59,1-65,9)	
switch-off			
Idle stop	475	max. 1,0	
	425	2,0-8,0 (0,5-9,5)	
	350	(18,5-27,5)	
	150	min. 90	
End stop	150	min. 90	
	250	max. 65	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,1-5,3
MS	1,5-1,7
SVS	4,3
X K	25,0-27,0
B X L	13,4-16,8

Observations

2 4 Solenoid max. cut-in voltage xx min. 10 V
rated voltage 12V.

E22

E22

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 5/11 F 1250 R 165

0 460 415 005

Overflow temperature 45° C

DHK: 1 688 901 020

superseded by
Fiat-Iveco
company engine 8055.05.200

Test Specifications

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
11 Timing device travel	800	2,5-2,9 mm		
12 Supply-pump pressure	800	3,8-4,4 bar (kgf/cm ²)		
13 Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	800	70,0-71,0	cm ³ /1000 strokes	3,5 (4,0)
14 Idle regulation	300	16,0-20,0	cm ³ /1000 strokes	3,0 (4,0)
15 Full-speed regulation	1400	16,5-22,5	cm ³ /1000 strokes	
16 Start	100	min. 95	cm ³ /1000 strokes	
17 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2 1 Timing device	n = rev/min mm	600 0,6-1,4 (0,3-1,7)	800 (2,0-3,4)	1200 6,0-6,8 (5,7-7,1)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0-2,6		1200 5,6-6,2
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2 3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop		1450	max. 2,0	
		1400	(15,0-24,0)	
		1360	42,5-49,5 (41,5-50,5)	
		1250	63,5-66,5 (62,4-67,6)	
		800	(67,9-73,1)	
		500	63,0-66,0 (61,1-67,9)	
switch-off		1250	0	
Idle stop		400	max. 2,0	
		350	8,0-14,0 (6,5-15,5)	
		300	(13,5-22,5)	
End stop		150	min. 95	
		250	max. 60	
2 4 Solenoid		max cut-in voltage test voltage	xxx min. 10 V rated voltage 12V.	

3. Dimensions <small>for assembly and adjustment</small>	
Designation	mm
K	-
KF	5,2-5,4
MS	1,5-1,7
SVS	4,3
A	
B	

Observations

Test Specifications Distributor-type Fuel-injection Pumps

En

VE 5/11 F 1900 L 179

Overflow temperature 45° C

0 460 415 007

supersedes
company: VM Motori
engine: HR 592 HTI/9

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air pressure bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,9- 5,3 mm	1,0	
1.2 Supply-pump pressure	1500	4,7- 5,3 bar (kgf/cm ²)	1,0	
1.3 Full-load delivery with charge-air pressure	1500	66,5-67,5 cm ³ /1000 strokes	1,0	3,5 (4,0)
Full-load delivery without charge-air pressure	600	39,5-40,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	420	20,5-24,5 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	2060	36,0-42,0 cm ³ /1000 strokes	1,0	
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA = 1,0 bar	n = rev/min mm	1000 1,5-2,3 (1,2-2,6)	1500 (4,4-5,8)	1900 7,1-7,9 (6,8-8,2)
2.2 Supply pump LDA = 1,0 bar	n = rev/min bar (kgf/cm ²)	600 1,7-2,3		1900 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		1900 (1,0 bar) 55-138 (40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2200	max. 3,0	1,0
	2160	2,0- 8,0 (0,5- 9,5)	1,0
	2060	(34,5-43,5)	1,0
	1900	59,0-62,0 (57,8-63,2)	1,0
	1500	(64,3-69,7)	1,0
	700 *	51,0-52,0 (48,1-54,9)	0,3
	600	(36,6-43,4)	0
switch-off			
Idle stop	420	(18,0-27,0)	
	500	4,5-10,5 (3,0-12,0)	
	650	max. 2,0	
	End stop	350	min. 50,0
	450	max. 55,0	
2.4 Solenoid	max. cut-in voltage test voltage XXXXXXXXXX	xxx min 10 V rated voltage 12V.	

3. Dimensions for assembly and adjustment

Designation	mm
K	-
KF	5,9-6,1
MS	0,9-1,1
SVS	3,2
A	
B	

Observations
Electrical shutoff device =
pushing electromagnet
*Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut (46).

Test Specifications Distributor-type Fuel-injection Pumps

Test ISO 419

VE 6/11 F 1250 R 181
0 460 416 036

Overflow temperature 45° C

DHK 1 688 901 020

supersedes
company: Fiat-Iveco
engine: 8065.06.200

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,6-3,0 mm		
1.2 Supply-pump pressure	800	4,4-5,0 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	350	13,0-17,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Full-speed regulation	1350	33,0-39,0 cm ³ /1000 strokes		
1.6 Start	100	min. 95,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,8-1,4(0,4-1,8)	800 (2,1-3,5)	1000 4,8-5,4(4,4-5,8)	1250 5,4-6,2(5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 3,1-3,7		1250 6,3-6,9	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1250 55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1450	max. 2,0	
	1400	2,5-8,5 (1,0-10,0)	
	1350	(31,5-40,5)	
	1300	49,5-56,5 (48,5-57,5)	
	1250	52,7-55,7 (51,5-56,9)	
	800	(60,3-65,7)	
	500	57,7-60,7 (55,8-62,6)	
switch-off			
Idle stop	450	max. 1,5	
	400	4,5-10,5 (3,0-12,0)	
	350	(10,5-19,5)	
End stop	150	min. 95,0	
	250	max. 60,0	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	3,3
KF	5,2-5,4
MS	1,5-1,7
SVS	4,3
A	
B	

Observations

2.4 Solenoid	max. cut-in voltage xxx min. 10 V test voltage xxxxx rated voltage 12V.
--------------	--

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PES 2 A 80 D 310/3 RS1322 EP/RSV..2011DL (1-2)
 PES 3 A 75 ..1185, 1320 EP/RSV 325-1000 A8B733D(3)
 PES 4 A 75 ..1183 EP/RSV 325-1400 A8B742D(4)
 PES 6 A 75 ..1197 EP/RSV..694D, 742D (5-6)
 PES4A80..1300, PES3A80..1324, PES6A75..1326 (7)

supersedes 5.78
 company K H D
 engine F.. L912

Type designations
 and notes, page 5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,90-2,00$
 (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,2 - 5,6	0,4	9	3,1 - 3,5	
	9	2,7 - 3,5		6	0,1 - 0,6	
200	9	0,7 - 1,4		9	0,6 - 1,3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

325-1400 A8B2011D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1400	12,0	without auxiliary spring			ca.20	325	5,5	1400	0
	1430	8,5				200	19 - 21	600	0,9-1,	
	1460	4,8	with auxiliary spring				325	5,2-5,8		
⑤	1440	ca. 10,5					450	2,7-4,1		
	1490	ca. 4,0					660	0 -1,5		
	1600	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp 40°C (104°F)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9
(1)	1400	60,0 - 61,0 (58,5 - 62,5)	1440-1450*	750	54,5 - 56,5 (52,5 - 58,5)			325	5,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

F2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.	900	16,0	without auxiliary spring			ca.26	325	6,0	880	0
	950	10,0					150	19 - 21		
⑤	980	4,0	with auxiliary spring				325	5,7-6,3	400	0,9-1,1
	900	ca. 11,6					450	1,5-3,7		
	1000	ca. 4,0					550	0 - 1		
	1080	0,3 -1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2)	900	55,0 - 56,0 (53,5 - 57,5)	940-950 *				325	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.48	1000	16,0	without auxiliary spring			ca.19	325	5,5	1000	0
	1060	10,0					100	19 - 21		
⑤	1110	4,0	with auxiliary spring				325	5,2-5,8	500	0,9-1,1
	1000	ca. 9,0					400	1,2-3,0		
	1080	ca. 4,0					500	0 - 1		
	1200	0,3 -1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3)	1000	46,0 - 48,0	1040-1050 *				325	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1400	12,0	without auxiliary spring			ca. 20	325	5,5	1400	0
	1430	8,5					200	19 - 21		
	1460	4,8					325	5,2-5,8		
②a	1420	9,2-10,4	with auxiliary spring				450	2,8-4,1	1000	0,2-0,4
	1500	2,0- 3,4					660	0 - 1		
	1580	0,3- 1								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(4) 1400	54,5 - 56,5	1430-1440*	800	49,5-52,5			325	5,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

325-1150 A8B694D (5)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 54	1150	12,0	without auxiliary spring			ca. 21	325	5,5	1150	0
	1190	7,8					200	19 - 21		
	1210	5,0					325	5,2-5,8		
②a	1130	8,0-9,6	with auxiliary spring				400	1,6-3,5	450	0,9-1,1
	1200	5,0-7,5					500	0 - 1		
	1210	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(59) See page 5!		1160-1170					325	5,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1400	12,0	without auxiliary spring			ca.20	325	5,5	1400	0
	1430	8,5					200	19 - 21		
⑤	1460	4,8	with auxiliary spring				325	5,2-5,8	1000	0,2-0,4
	1420	9,2-10,4					450	2,8-4,1	500	0,9-1,1
	1500	2,0- 3,4					660	0 - 1		
	1580	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(6) 1400	58,0 - 60,0	1430-1440*	800	51,0 - 54,0			325	5,5
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

1. Type designations and power outputs

Engine Pump	Output at speed	- Manufacturer Governor	Item as or
<u>F 2 L 912 - 30 kw (38HP) at 2400 min.</u>			
PES 2 A 80 D 310/3 RS 1322		EP/RSV 325-1400 A 8 B 201 DL	1
<u>F 2 L 912 - 18 kw (25HP) at 1800 min.</u>			
PES 2 A 80 D 310/3 RS 1322		EP/RSV 325-900 A 7 B 2011 DL	2
<u>F 3 L 912 - 27 kw (37HP) at 2000 min. - Fendt</u>			
PES 3 A 75 D 410/3 RS 1185		EP/RSV 325-1000 A 8 B 733 DL	3
<u>F 4 L 912 - 54 kw (73HP) at 2800 min. - Berliet</u>			
PES 4 A 75 D 410/3 RS 1183		EP/RSV 325-1400 A 8 B 742 DL	4
<u>F 6 L 912 -</u>			
PES 6 A 75 D 410/3 RS 1197		EP/RSV 325-1150 A 8 B 694 DL	5 - KHD 1 c
<u>F 6 L 912 - 81 kw (110HP) at 2800 min. - Berliet</u>			
PES 6 A 75 D 410/3 RS 1197		EP/RSV 325-1400 A 8 B 742 DL	6
<u>F 4 L 912 -</u>			
PES 4 A 80 D 410/3 RS 1300		EP/RSV..	7 - KHD 1 c
<u>F 3 L 912 -</u>			
PES 3 A 80 D 410/3 RS 1324		EP/RSV..	7 - KHD 1 c
<u>F 6 L 912 -</u>			
PES 6 A 75 D 410/3 RS 1326		EP/RSV..	7 - KHD 1 c

2. Notes

The remarks given under (7) and the governors (Items 1..6) are also used with the injection pumps and governors listed on KHD 1 c. The full-load deliveries for the possible combinations are given on KHD 1 c on pages 7 - 18 and on the present pages 1 - 4.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 L2

1. Edition

En

PES 6 A 80 C 410 RS 2085 EP/RSV 575-1250 A 1 B 533 D
D

supersedes
Daimler-Benz
company OM 352
engine Mährescher - 118 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5-6,0	0,4			
200	6	2,2-3,0				
	15	11,5-12,8				
	6	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev./min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm/rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 62	1250	16,0	without auxiliary spring			ca. 28	575	5,5	1230	0
	1280	11,8				200	19-21	650	0,3-0,5	
	1320	5,0				575	5,2-5,8			
ca. 60	1250	ca. 8,5	with auxiliary spring				620	2,0-3,6		
2a	1295	ca. 3,0				700	0 - 1,0			
	1350	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104 F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1230	1290-1300: 3 mm RW	800	55,5-57,5 (54,0-59,0)	500	52,5-55,5 (51,0-57,0) 48,0-51,0 (46,5-52,5)	100	13,2-13,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Technische Zeichnung

F7

F2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 DAI 5,7d

3. Edition

En

PES 6 A 80 C 410 RS 2085 RQV 300-1425 AA 538 DL
D AB 538 DL
Komb.-Nr. 0 400 846 177

supersedes 3.70
company: Daimler-Benz
engine OM 352 (126 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,2(0,35)			
200	6	2,2 - 3,0				
		15	11,5 - 12,8			
	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1425	16,0-19,3	-	-	-	ca. 10	100	7,0-8,0	250	0,9-1,1
	1450	14,6-18,2					250	5,5-7,0	640	3,6-3,9
	1550	8,2-13,3					400	3,4-5,2	1040	5,2-5,3
	1650	1,3-8,0					500	2,5-3,7	1425	7,8
	1750	0 - 2,5					600	1,4-2,8		
	1800	0					770	0		

Torque control travel s = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	56,5-57,5 (55,0-59,0)	1445-1455*	1000	54,0-56,0 (52,5-57,5)	100	13,2-13,8 mm RW	1400	0
			800	52,5-54,5 (51,0-56,0)			1200	0-0,2
			500	49,5-52,5 (48,0-54,0)			1000	0,3-0,5
							800	0,6-0,8
							500	0,6-0,8

Checking values in brackets

* 1 mm less control rod travel than col 2
4.84

F8

F8

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 p 1

1. Edition

En

PES 6 A 80 D 410 RS 2085 RSV 350-1300 A 1 B 728 DL
Komb.-Nr. 0 400 876 217

superseded by Daimler-Benz
company OM 352
engine 105 FS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
 $(2,10-2,30)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9,0	5,5-6,0	0,4			
1000	6,0	2,3-3,0				
200	6,0	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil SO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 74	1300	16,0	without auxiliary spring			ca. 27	350	6,2	1300	0		
	1350	10,7							200	19,0-21,0	400	1,0-1,2
	1390	5,4							350	5,9-6,5		
ca. 70	1310	ca. 7,7	with auxiliary spring				500	1,0-3,5				
2a	1360	ca. 3,4							620	0-1,0		
	1450	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40° C (104° F)		Note changed to		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	rev/min		4	5	6	7	8	9
1	2	3							
1280	48,0-49,0 (46,5-50,5)	1320-1330*		1100	45,0-48,0 (43,5-49,5)	100	ca. 79	-	-
				700	44,5-46,5 (43,0-48,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

F9

FS

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 L2

4. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2108

EP/RSV 200-1100 A1 B 607L
200-1050 A1B 607 L
450-1050 A1B 607 L
A1C 607 L

superseded by 83
company MAN - RABA
engine D 2156 ..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	8,4 - 9,4				
	6 15	4,0 - 5,0 16,6 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1100

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	6	9	10	11
ca. 60	1100	16,0	without auxiliary spring			ca. 24	200	6,0	1080	0
	1150	11,0					100	19 - 21		
	1180	6,4					200	5,7-6,3		
2a	1140	10,4-12,8	with auxiliary spring				300	2,2-4,1	250	1,2 - 1,8
	1180	4,0-8,4					450	0 - 1		
	1300	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1100	93,5 - 96,4	1140-1150*			100	min. 20,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

F10

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

F10

5.84

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 60	1050	16,0	without auxiliary spring			ca. 26	200	6,0	1030	0
	1120	9,8					100	19,0-21,0		
②a	1160	5,0	with auxiliary spring			ca. 26	200	5,7-6,3	1030	0
	1120	8,0-11,8					300	2,0-3,9		
	1180	2,0-4,5					420	0 - 1,0		
1260	0,3-1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	93,5-96,4	1140-1150*	-	-	100	min 20,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

450-1050

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	450	5,5	1050	12,6+0,1
	x = 3,5						100	min.19,0		
ca. 47	11,6	1090-1100				ca. 22	450	5,9-6,1	300	13,4+0,6
	4,0	1095-1125					540-600	= 2,0		
	1285	0,3-1,7					650	max. 1,0		
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1050	133,5-139,5 (131,5-137,5)	1090-1100*	750	133,5-137,5 (131,5-139,5)	100	19,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 MAN 9,7 1 5
2. Edition

En
PES 6 A 95 D 410 RS 2108 RSV550-1100 A 1 B 607 L
A 1 C 607 L

superseded by 7.83
MAN
company
engine

Komb.-Nr. 0 400 876 235

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,7-1,8

Port closing at pr: stroke (1,65-1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1100	10,2+0,1	9,4-9,5	0,3(0,6)			
550	5,9-6,1	1,6-2,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
loose	800	0,3-1,0	-	-	-	ca.29	550	5,5	1100	10,2-10,3
	X = 2,25						100	min.19,5	500	10,2-10,4
ca.56	9,2	1140-1150					500	5,9-6,1	370	11,3-11,9
	4,0	1155-1185					660-720	= 2,0		
2a	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
	1100	94,0-95,0 (92,0-97,0)	1140-1150*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

F12

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

F12

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 9,7 1 3

En 3. Edition

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2108 R
Komb.-Nr. 0 400 876 304

RSV 550-1100 A 1 B 607 L
A 1 C 607 L

supersedes 5.81
company MAN-RABA
engine D 2356 HM6
50 kW (204 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(1,65-1,85)$ mm (from BDC) $RW = 9,0-12,0$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,7+0,1	11,5 - 11,7	0,35(0,6)			
550	5,9-6,1	1,1 - 1,7	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 25	550	6,0	1100	12,7+0,1
	X	= 3,25					100	min. 19,5	400	12,7+0,2
							550	6,4-6,6	250	13,9+0,6
							725	max. 1,0		
⑤ ca. 50	1120-1130=11,7						625-685	2,0		
	1170-1200= 4,0									
	1330 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)	Note changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	114,5-116,5 (112,5-118,5)	1140-1150*	700	110,0-113,0 (108,0-115,0)	100	19,0-21,0 mm RW	-	-
			500	max. 112,0 (max. 114,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 o2

2. Edition

En

PES 6 A 95 D 410 RS 2108 EP/RSV 250-1100 A 1 B 692 D
Komb.-Nr. 0 400 876 203

superseded by 5.84
MAN
company
engine D 2156 HM 6 HDK
MAN-Nr. 1-7624

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) ^{1,7 - 1,8} mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9,0	7,5-8,0	0,5			
200	6,0 6,0	3,2-4,2 0,5-1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	2	4	5	6	7	8	9	10	11
ca. 59	1100 1150 1200	16,0 11,5 6,3	without auxiliary spring			ca. 23	250	7,5	1080	0
	1160	9,0-12,0				100	19 - 21	900	0,2 - 0,4	
2a	1200	4,6- 7,9	with auxiliary spring				250	7,2- 7,8	500	0,4 - 0,6
	1350	0,3- 1,0				400	3,5- 5,3		650	0 - 1,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1100	110,0 - 112,0 (109,0 - 113,0)	1140-1155*	700	110,0 - 113,0 (109,0 - 114,0)	100	17,7-18,3 mm RW	250	7,5	
			500	max. 114,0					

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

F14

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7300 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

F14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 o1
2. Edition

En

PES 6 A 95 D 410 RS 2108 W
Komb.-Nr. 0 400 876 200

EP/RSV 250-1100 A 1 B 1071

superseded by 3.84
company MAN
engine D 2156 HMN 5 D
MAN-Nr. 1-7524

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,7-1,8) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	9,0	7,5 - 8,0	0,5			
	6,0	3,2 - 4,2				
200	6,0	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
Ca. 59	1100	16,0	without auxiliary spring			ca. 25	250	6,0	1100	0		
	1150	11,4							100	19 - 21	300	1,2 - 1,8
	1190	6,0							250	5,7 - 6,3		
	1160	8,0-11,0	with auxiliary spring				350	1,7 - 3,6				
2a	1250	1,3-3,2							450	0 - 1,0		
	1350	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 °C (104 F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1100	120,5-123,5 (119,5-124,5)	1140-1155*	500	max. 118,5	100	min. 18,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

F15

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

FAS

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 o

3. Edition

En

PES 6 A 95 D 410 RS 2108 Y
Komb.-Nr. 0 400 876 201

EP/RSV 250-1100 A1 B 1071

supersedes 3.84

company MAN

engine D 2156 HMN 6 D
MAN-Nr. 1-7623

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 - 1,8$
(1,65- 1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	9,0	7,5-8,0	0,5			
200	6,0	3,2-4,2				
	6,0	0,5-1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control			
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 59	1100	16,0	without auxiliary spring			ca. 25	250	6,0	1100	0		
	1150	11,4					100	19 - 21			300	1,2 - 1,8
	1190	6,0					250	5,7- 6,3				
2a	1160	8,0-11,0	with auxiliary spring				350	1,7- 3,6				
	1250	1,3- 3,2					450	0 - 1,0				
	1350	0,3- 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	108,5-110,5 (107,5-111,5)	1140-1155*	500	max. 104,0	100	min. 18,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

F16

BOSCH

Geschäftsbereich KM Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

F16

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 6 A 85 C 412 RS 2139
..D..

RQ 250/1350 AB 645D

supersedes 8.78
company M A N
engine D 0836 HMN 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
200	6	1,3 - 2,1				
	15	12,4 - 13,1				
	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5		Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9		rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16,0	1370	14,6-15,0	560	0	150	6,7-8,1	800	15,8-16,0
				1400	6,5-14,4			250	4,7-6,8	1000	15,3-15,6
				1430	0 -10,0			350	1,9-4,0	1200	15,0-15,2
				1490	0			460	0		

Torque control travel on flyweight assembly dimension a $0,3$ mm Speed regulation At $1390 - 1405 = 1,5$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1350	74,5 - 76,5 (72,5 - 78,5)		800	74,0 - 77,0 (72,0-79,0)	100	21 mm RW
					250	6,0 mm RW

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 7,2 F 2

1. Edition

En

PES 6 A 85 D 410 RS 2139 RQ 250/1250 AB 797 DL

C

Komb.-Nr. 0 400 846 254

supersedes -

company MAN

 engine D0846 HM 10/20
 HMN 10/80/81
 118 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,0+0,1	7,1-7,2	0,3(0,45)			
250	6,8-7,0	0,8-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Test Oil ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	9,0 4,0 1450	1295-1310 1325-1355 0-1,0	250	6,8	100 250 365-405 = 2,0 450	min.8,3 6,7-6,9 max.1,0	1250 500 800 1000	10,0-10,1 10,8-10,9 10,8-10,9 10,5-10,7

 Torque-control travel on flyweight: assembly dimension a = $0,5$ mm Speed regulation: At $1295-1310 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1250	70,5-71,5 (68,5-73,5)	-	800 500	72,0-75,0 (69,5-77,5) 68,0-72,0 (65,5-74,5)	100 250	120,0-130,0 (117,0-133,0) 6,8 mm RW

Checking values in brackets

5.84

F18

F18

BOSCH

 Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 h 1

1. Edition

En

PES 6 A 80 C 410 RS 2194 RQV 300-1425 AA 535 DL
D AB 535 DL

supersedes

company Daimler-Benz

engine OM 352 (126 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,2 (0,35)			
200	6	2,2 - 3,0				
	15	11,5-12,8				
	6	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425	16,0-19,3	-	-	-	ca. 10	100	7,0-8,0	250	0,9-1,1
	1450	14,6-18,2					250	5,5-7,0	640	3,6-3,9
	1550	8,2-13,3					400	3,4-5,2	1040	5,2-5,3
	1650	1,3-8,0					500	2,5-3,7	425	7,8
	1750	0 -2,5					600	1,4-2,8		
	1800	0					770	0		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	56,5-57,5 (55,0-59,0)	1445-1455*	1000	54,0-56,0 (52,5-57,5)	100	13,2-13,8 mm RW	1400	0
			800	52,5-54,5 (51,0-56,0)			1200	0-0,2
			500	49,5-52,5 (48,0-54,0)			1000	0,3-0,5
							800	0,6-0,8
							500	0,6-0,8

Checking values in brackets

* 1 mm less control rod travel than col 2

4.84

Testoil-ISO 4113

F19

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

F19

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,4 c 2

1. Edition

En

PES 4 A 90 D 410 RS 2195 Z RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 063

supersedes
company OM-Brescia
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at piston stroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,8+0,1	6,8-6,9	0,3(0,45)			
250	8,4-8,6	-	-			

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12				
650	15,6-16,4	650	16,0	9,8 4,0	1245-1260 1335-1365	250	6,0	100 250 425-465=2,0	min.7,5 5,9-6,1 2,0	-	-				

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1245-1260 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1200	68,0-69,0 (66,0-71,0)	-	800	58,0-62,0 (56,0-64,0)	100	16,3-17,0 mm RW

Checking values in brackets

6.84

F20

F20

BOSCH

Geschäftsbereich KH, Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 4,4 c
3. Edition

En

PES 4 A 90^C_D 410 RS 2195

RQ 275/1300 AB 856 (1)
RQV 250-1300 AB 803 D (2)
RQV 250-1200 AB 855 D (3)

supersedes 6.83
company OM Brescia
engine CO 3 D

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery "D" cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,4	9	5,1 - 5,5	
	6	2,5 - 3,4		6	1,6 - 2,6	
	15	13,6 - 14,3		-	-	
200	9	3,8 - 4,6		9	1,9 - 2,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1300 AB 856 (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
700	15,7-16,3	700	16,0	1320	15,6-16,0	640	0	100	6,6-8,1	-	-				
				1360	11,8-15,0			250	5,1-7,2						
				1460	0 - 8,0			400	2,0-4,2						
				1560	0			540	0						

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(1)		500			100	min. 16,5
1300	82,0-84,0		800	77,5 - 80,5		mm RW

Checking values in brackets

5.84

B. Governor Settings

RQV 250-1300 AB 803 D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1300 1400 1500 1630	15,0-17,6 8,3-13,2 0,8-8,0 0	-	-	-	ca. 10	100 200 300 400	5,8-8,0 4,4-6,6 0,8-4,0 0 -1,3	380 1300	3,2-3,6 8,3

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2)			1000	73,0-75,0 (71,0-77,0)	100	ca. 17,0	1300	0
1300	74,5-75,5 (72,5-77,5)	1320*	600	65,0-67,0 (63,0-69,0)		mm RW	600	0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 250-1200 AB 855 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1280 1600	15,0-17,6 0	-	-	-	ca. 10	120 250 350 450 610	6,2-8,0 3,7-6,0 0,5-3,0 0 -1,2 0	400 1280	3,2-3,7 8,2
ca. 62	1200 1300 1400 1550	15,0-17,6 9,0-13,2 1,2-8,3 0								

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3)			800	74,5-77,5 (72,5-79,5)	100	min. 16,0	-	-
1200	79,5-80,5 (77,5-82,5)	1230-1240*				mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1
4. Edition

En

PES6A90D410RS2293 RSV575-1250A1B618L

supersedes 82
company Daimler-Benz
engine OM 352
88 kW (120 PS)

Testo ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	10,5+0,1	6,1-6,2	0,3(0,45)			
575	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.28	575	,5	-	-
	X=5,0						100	min.19,0		
							575	6,4-6,6		
							605-635	=2,0		
Ca.66	9,5	1250-1260						**		
⑤	4,0	1275-1295								
	1 50	0,3-1,7								

** Set idle -speed auxiliary spring at 2.0 mm control-rod travel then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp 40°C (104°F)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9
	1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	71,0-81,0 (68,0-84,0) =14,7-15,1 mm RW	-	-

Checking values in brackets

: 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 10

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 780 L (1)

781 L (2)

925 L (3)

superseded 1.82

company Daimler-Benz

engine OM 352

96 kW (131 PS)

Komb.-Nr. 0 400 846 232 (1)

0 400 846 233 (2)

0 400 846 355 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25} (2,10-2,30) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. 780 L , ..781 L u. ..925 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	250	0,6-1,0
ca. 59	8,7	1455-1465					300	7,5-7,7	640	3,2-3,6
	4,0	1550-1580					875	max. 1,0	1035	5,5-5,8
	1700	0 - 1,0				370-520			1425	8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	61,5 - 62,5 (59,5-64,5)	1455 - 1465*	-	-	100	71,0-81,0 (68,0-84,0) = 13,9-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

F24

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

F24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 2

3. Edition

En

PES G A 90 D 410 RS 2293

RQV 300-1400 AB 880 DL

supersedes 2.82
Daimler-Benz
company OM 352
engine 88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	9,7-9,8	6,0 - 6,1	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,2	250	0,9-1,1
ca. 59	8,7	1420-1430					300	7,6-7,8	630	3,2-3,6
	4,0	1510-1540							1020	5,6-5,8
	1650	0 - 1,0				375-525			1400	8,2

Torque control travel a = 0,65 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	53,5-61,5 (57,5-62,5)	-	600	48,0-51,0 (46,0-53,0)	100	13,8-14,2 mm RW	1380	9,7+0,1
			1000	54,5-57,5 (52,5-59,5)			600	10,3+0,1
							885	10,1+0,2
							1160	9,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
c. by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

GA

Testo-ISO 1110

G1

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 10 A 90 D610/4 LS2243	RQ 250/1250 AB790D	(1)
PE 8 A 85 D 410 LS2477	RQV 300-1325 AB937D	(2)
PE 6 A 85 D 410 LS2521	RQV 300-1325 AB937D	(3)
Please note instructions on sheet 3 - 4	RQV.. , EP/RZU..	(4)

supersedes - (9.77)
 company K H D
 engine F.. L 413 (L)
 (L)-(F 10 - 270 PS - 1)
 (F 8 - 232 PS - 2)
 (F 6 - 170 PS - 3)
 (zu KHD 1 b - 4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Port closing at prestroke mm (from BDC)		Difference cm ³ /100 strokes	Port closing at prestroke mm (from BDC)		Spring pre-tensioning (torque-control valve) mm
	Control rod travel mm	Fuel delivery cm ³ /100 strokes		Control rod travel mm	Fuel delivery cm ³ /100 strokes	
1000	9	4,9 - 5,5	0,4	9	5,8 - 6,3	
	6	1,3 - 2,1		6	2,5 - 3,4	
200	9	3,9 - 4,4		9	3,2 - 4,1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1250 AB790D (1)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		Setting point		Test specifications		rev/min	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
600	15,6-16,4	600	16,0	9,0	1295-1310	250	6,0	100	min. 7,5	1250	10,0
1270	14,3-14,7			4,0	1325-1355			250	5,9-6,1	800	10,6
1400	0 - 1							345	385 = 2,0	500	10,9
								450	0 - 1		

Torque control travel on flyweight assembly dimension a 0,4 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes mm RW
1250	72,5 - 73,5 (70,5 - 75,5)	500	800	70,5 - 73,5 (68,5 - 75,5)	100	14,0-15,0
			500	65,0 - 69,0 (63,0 - 71,0)		

Checking values in brackets

./.

RQV..937D mit 2477 (2)

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
	mm	mm			mm			mm		
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1325	13,7-16,8	-	-	-	ca. 12	100	6,2-7,7	1325	8,7
	1400	5,8-11,8					250	5,0-6,5		
	1450	0 - 8,0					400	2,8-4,2	1300	0
	1540	0					600	1,5-2,9		
					830	0	600	0,6-0,8		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9
1325	78,0 - 80,0 (76,0 - 81,0)	1355-1365	1000	76,0 - 79,0 (74,0 - 81,0)	100	14,7-15,7		
			800	75,5 - 78,5 (73,5 - 80,5)				
					100-200 (80-220)			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV..937D mit 2521 (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
	mm	mm			mm			mm		
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1325	13,7-16,8	-	-	-	ca. 12	100	6,2-7,7	1325	8,7
	1400	5,8-11,8					250	5,0-6,5		
	1450	0 - 8,0					400	2,8-4,2	1300	0
	1540	0					600	1,5-2,9		
					830	0	600	0,6-0,8		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9
1325	78,0 - 79,0 (76,0 - 81,0)	1365-1735	1000	76,0 - 79,0 (74,0 - 81,0)	100	ca. 15 mm RvI		
			800	75,5 - 78,5				
					100-200 (80-220)			./.

Checking values in brackets

* 1 mm less control rod travel than col 2

G3

RQV..., EP/RZU.. (4)

Listed below are the extensions and modifications which have resulted since the 1st edition of KHD 1 b (8.73). The below-listed governors and the pumps given on Page 1 may be combined with the governors/pumps listed in KHD 1 b; the full-load deliveries - ordered by engine power and engine speed - are given on KHD 1 b, Pages 17 - 22 and on the pages of this list.

Extensions and modifications to Pages 2-3 of KHD 1 b

RQ and RQV governors - ordered by code numbers

Designation	P R G	Corres. V-No.	Test like
<u>to 4</u> RQV 300-1000 AB688DL	1 428 101 098		
300-750	071	as 300-800	
300-1325 (-1300)	118		Item 29
<u>to 21</u> RQV 250-1150 AB776KL	1 428 101 103	(V 10629K)	Item 41
RQV 250-1250 AB777KL	104	(V 10630K)	Item 35
RQV 250-1325 AB778KL	105	(V11348K, 11997K)	Item 21 p.5
<u>to 25</u> RQ 250/1250 AB790DL	1 428 110 205	V13561	
<u>to 27</u> RQV 250-1325 AB792DL	117	(V10752D,10987D)	Mod. Item 27 p. 5
<u>to 37</u> RQV 250-1250 AB835KL	1 428 101 129		Correction
<u>to 38</u> RQV 250-1250 AB840KL	1 428 101 104		Correction
40. RQV 250-1250 AB872KL	1 428 101 104	V 11508K	Item 35
41. RQV 250-1150 AB877KL	1 428 101 103	V 11418K	Item 41
42. RQV 300-800/1325AB885DL	1 428 101 142	V12215D (12011D,13605)	Item 42
43. RQV 300-985/1325AB886DL	1 428 101 109	(V 11954D)	Item 22
44. RQV 300-1325 AB887DL	1 428 101 117	(V11955D)	Item 27
45. RQV 300-800/1325AB888DL	1 428 101 142		Item 42
46. RQV 300-1200 AB889DL	1 428 101 146	(V 11987D)	Item 46
47. RQV 300-750 AB890DL	1 428 101 147	V 11872D	Item 47
RQV 300/525-750 AB890DL	1 428 101 164	PRG Mod. (12125D)	Item 47
48. RQV 300-1325 AB924DL	1 428 101 152		Item 48
49. RQV 300-1325 AB937D,938D	1 428 101 118		Item 29
50. RQV 300/650-900 AB939DL	1 428 101 156	V11873D	Item 50
300/800-1150	1 428 101 157	V11875D	Item 50
51. RQV 300-1150 AB950KL	1 428 101 126	V 11014K	Item 36
52. RQV 300-1250 AB958L	1 428 101 160		Item 52
52. RQV 300-1150 AB962L	1 428 101 172		Item 53
54. RQV 300-1250 AB1005DL	1 428 101 088/III		Item 54

Additions to page 5 of KHD 1 b - continued - KHD 1 b 1

RQ- and RQV governors - ordered according to V no. -

V no.	released as	V no.	released as
RQV 250-1150 ABV 10629K	AB 776 KL	RQV 300-800/1325 ABV 12011D	AB 885 DL
RQV 250-1250 ABV 10630K	AB 777 KL	RQV 300-1250 ABV 12076	AB 896 L
RQ 250/1250 ABV 10762D	AB 791 DL	RQV 300/525-750 ABV 12125D	(AB890DL)
RQV 300-1325 ABV 10816D	AB 800 DL	RQV 300-1200 ABV 12126D	AB 915 DL
RQV 300-985/1325 ABV10882D	AB808 DL	RQV 300/650-900 ABV12199D	(AB939DL)
RQV 300-1325 ABV 11009D	(AB 809DL)	RQV 300/800-1150 ABV12200D	(AB939DL)
RQV 300-1150 ABV 11014D	AB950 KL	RQV 300/800-1325 ABV12215D	(AB885DL)
RQV 300-1150/1325 ABV11310D	see page 8		
RQV 250-1150 ABV 11418K	AB 877 KL	RQ 300/1250 ABV 12216D	AB 926 DL
RQV 250-1250 ABV 11508K	AB 872 KL	RQV 300-1250 ABV 12217D	AB 927 DL
RQ 300/1325 ABV 11708K	AB 929 L	RQ 300/1250 ABV 12241	AB 929 L
RQ 300/1325 ABV 11709	AB 930 L	RQV 300-1250 ABV 12248D	AB 788 DL
RQV 300-750 ABV 11872 D	AB 890 DL	RQV 300-1325 ABV 12249D	AB 800 DL
RQV 300/650-900 ABV11873D	AB 939 DL	RQV 300-1250 ABV 12252	AB 897
RQV 300/800-1150 ABV11875D	AB 939 DL	RQV 300-1200 ABV 12259D	(AB820 DL)
RQV 250-1325 ABV 11945D	see page 8	RQV 300-750 ABV 12262	(AB 890 DL)
RQV 300-985/1325 ABV 11954D	AB886DL	RQV 300/800-1150 ABV 12264	(AB 939 DL)
RQV 300-1325 ABV 11955D	AB 887 DL	RQV 300/800-1325 ABV 12271	(AB 888 DL)
RQV 300-1075 ABV 11960D	AB 898 DL	RQV 300-985/1325 ABV 12630	(AB783 DL)
RQV 300-1150 ABV 11961D	AB 898 DL	RQV 300-1150 AB12744	(AB 688 DL)
RQV 300-1250 ABV 11962D	AB 898 DL	RQV 300-1325 ABV 12826	(AB 800 DL)
RQV 300-1200 ABV 11987D	AB 889 DL	RQV 300-1250 ABV13475D	AB 1005 DL
RQV 300-1325 ABV 11997K	(AB 778 KL)	RQ 250/1250 ABV 13561D	AB 790 DL

Notes on EP/RZU

Test specifications page 9 - 10

Note test instructions WPP 001/4, Suppl. 4. The control-rod travel of 14.0 mm given in Column 3 is reduced in accordance with the previously set full-load delivery if the latter yielded a smaller control-rod travel.

Note on page 3 - 4:

Released as - without parentheses - means: V no. is released as .. .

Released as - in parentheses - means: the PRG part can be set in accordance with the test specifications of the governor in parentheses.

Setting values for the governor RQV..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

zu 4 RQV 300-1000 AB688 DL

Torque-control travel Maß a = 0,9 mm

ca. 63	1000	15,0-18,0	-	-	-	ca. 12	100	6,4-8,0	1000	8,3
	1030	11,0-15,0					300	4,5-6,1		
	1060	7,0-12,0					450	2,5-3,8	1000	0
	1100	0 - 7,8					620	0 - 1,1		
	1170	0					670	0	500	0,8-1,0

zu 21 RQV 250-1325 AB778KL

ca. 66	1325	15,0-17,7	-	-	-	ca. 10	200	6,8-8,0	250	0,5-1,6
	1400	10,0-14,0					300	2,8-5,1	400	2,2-2,9
	1470	5,2-10,4					400	2,0-3,4	700	4,2-4,6
	1530	0 - 7,3					560	0 - 1,1	1325	8,3
	1660	0					610	0		

zu 27 RQV 250-1325 AB792DL
RQV 300-1325 AB887DL

Torque-control travel Maß a = 0,8 mm

ca. 68	1325	12,0-15,8	-	-	-	ca. 12	200	6,7-8,2	300	0,4-1,4
	1400	4,6-11,0					300	5,1-7,3	600	5,0-5,4
	1460	0 - 6,8					400	2,6-4,9	1325	8,6
	1560	0					530	0	1300	0
									700	0,8

Pos. 36 - RQV 300-1150 AB950KL

ca. 66	1150	15,0-17,6	-	-	-	ca. 15	150	9,4-10,3	250	0,6-1,8
	1210	10,8-14,6					250	6,5-9,0	350	2,2-2,9
	1270	5,8-11,2					350	3,8-5,5	550	4,0-4,4
	1330	0 - 7,6					450	2,2-3,6	950	6,2-6,7
	1430	0					660	0	1150	8,3

Pos. 41 - RQV 250-1150 AB776KL, 877KL

ca. 66 ⁰	1150	15,0-17,8	-	-	-	ca. 10	200	6,2-9,0	300	1,4-2,3
	1240	8,0-12,6					300	2,8-5,0	600	4,0-4,4
	1330	0 - 7					400	1,7-3,2	900	5,8-6,3
	1430	0					500	0,4-1,7	1150	8,3
							580	0		

Setting values for the governor RQV..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Pos. 42 - RQV 300-300/1325 AB885DL, 888DL Torque-control travel a = 0,7 mm

ca. 50	1330	18,0-21,6	ca. 30	600	11,9-14,3	ca. 10	100	9,4-12,2	150	0,8-1,4
	1400	11,3-16,5		680	8,6-10,9		200	7,4-10,1	700	4,0-4,4
	1450	5,8-12,2		760	4,7-7,0		300	4,1-7,9	1020	7,4-7,6
	1500	0 - 8		840	0 - 2,3		400	0 - 3	1300	7,8
	1590	0		880	0		510	0	1330	0
										650
								430	0,6-0,8	

Pos. 46 - RQV 300-1200 AB839DL Torque-control travel Maß a = 1,2 mm

ca. 63	1250	14,8-17,8	-	-	-	ca. 12	200	6,8-8,2	1250	8,3
	1350	8,7-13,2					300	5,2-7,0		
	1480	0 - 6,5					470	0 - 2,2		
	1590	0					530	0		

Pos. 47 - RQV 300-750 AB890DL Torque-control travel Maß a = 1,0 mm

ca. 63	770	15,0-13,0	-	-	-	ca. 12	200	6,8-8,2	770	8,3
	800	3,0-13,8					400	3,0-4,6		
	840	0 - 7,0					520	0 - 1,6	750	0
	890	0					560	0	450	0,9-1,1

zu 47 - RQV 300/525-750 AB890DL - PRG-Änderung- Angleichweg Maß a = 1,0 mm

ca. 63	760	15,0-13,4	ca. 52	525	14,0-20,0	ca. 12	175	7,1-8,2	250	0,3-1,2
	800	4,2-11,0		600	7,9-12,2		300	4,0-6,3	400	1,9-2,1
	815	0 - 3,0		650	3,0-6,2		400	3,6-4,0	600	3,7-4,5
	850	0		700	0		600	0	760	8,3
										760
								600	1,0	

Pos. 48 - RQV 300-1325 AB924DL Torque-control travel Maß a = 1,2 mm

ca. 68	1400	15,0-18,0	-	-	-	ca. 12	200	6,6-7,9	1400	8,3
	1500	6,6-12,2					400	3,6-5,2		
	1570	0 - 7,4					600	1,2-2,5	1330	0
	1660	0					750	0	600	1,1-1,3

G7

Setting values for the governor RQV ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Pos. 50 - RQV 300/650-900 AB 939 DL

Torque-control travel Maß a = 1,0 mm

ca. 68	910	15,0-18,4	ca. 48	610	11,6-16,5	ca. 12	200	6,8-8,2	920	8,3
	980	0 - 7,5		700	6,0- 9,8		400	3,6-4,6		
	1020	0		790	0 - 2,0		600	1,8-4,0	900	0
				810	0		720	0	650	0,9-1,1

Pos. 50 - RQV 300/800-1150 AB 839 DL

Torque-control travel Maß a = 1,0 mm

ca. 68	1160	15,0-18,4	ca. 48	760	11,2-16,4	ca. 12	200	6,1-7,7	1160	8,3
	1200	8,4-13,8		850	7,6-11,8		450	3,6-4,0		
	1250	0 - 7,6		950	2,8-5,6		650	3,3-4,0	1160	0
	1310	0		1030	0		900	0	800	0,9-1,1

Pos. 52 - RQV 300-1250 AB 958 KL

ca. 66	1270	15,0-17,6	-	-	-	ca. 10	200	7,4-8,0	300	0,8-1,8
	1350	8,4-13,2					400	2,4-4,0		
	1440	0 - 7					600	1,0-2,4	1270	8,3
	1530	0					790	0	-	-

Pos. 53 - RQV 300-1150 AB962 L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1220	8,2-13,6					450	2,7-4,1		
	1290	0 - 7,3					650	0,7-1,8	-	-
	1370	0					800	0	-	-

Pos. 54 - RQV 300-1250 AB 1005 DL

Torque-control travel Maß a = 1,2 mm

ca. 68	1290	15,0-18,2	-	-	-	ca. 13	150	7,3-8,6	250	0,4-1,2
	1360	7,5-13,0					300	5,2-6,7		
	1420	0,5-8,1					600	2,0-3,2	1250	0
	1510	0					850	0		

G8

G8^{En}

Setting values for the governor RQV.. V-Nr.

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 250-1325 ABV 11945 D

Torque-control travel Maß a = 0,8 mm

ca. 50	1340	14,0-17,6	-	-	-	ca. 13	100	7,8-11,2	400	1,8-2,3
	1400	8,2-13,4					200	6,3-8,9		
	1480	0 - 4,8					300	3,7-6,3		
	1560	0					450	0		

RQV 300-1150/1325 ABV 11310D

Torque-control travel Maß a = 0,6 mm

ca. 68	1400	14,0-15,0	ca. 62	1130	11,0-14,0	ca. 12	100	7,2-8,5	200	0,4-1,0
	1500	3,8-10,0		1250	3,2- 6,6		300	5,4-6,6		
	1550	0 - 6,7		1350	0,5- 1,3		600	1,9-3,3		
	1650	0		1460	0		850	0		
									1150	0
									550	0,5-0,7

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

Setting values for the governor EP/RZU ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

500 A 1/2, .. 1/4

full	500	1,0-14,0								
	510	1,0-1,5								
	550	1,0								

750 A 1/1, 1/3, 1/5, 1/6, 1/8, 1/10, 1/12, 1/16

full	750	1,0-14,0								
	758	1,0-1,5								
	800	1,0								

750 A 1/7, 1/9, 1/11, 1/13

full	750	14,0								
	770	9,4-10,1								
	800	2,6-4,2								
	820	1,0-1,4								
	860	1,0								

900 A 2/1, 2/5, 2/6, 2/8, 2/10, 2/12, 2/16, 2/18

full	900	1,0-14,0								
	910	1,0-7,0								
	920	1,0-1,5								
	955	1,0								

900 A 2/7, 2/9, 2/11, 2/13

full	900	14,0								
	920	9,7-10,5								
	940	5,5-7,1								
	960	1,0-3,6								
	970	1,0-1,5								
	1020	1,5								

Setting values for the governor EP/RZU.. Continued

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

923 A 2/14

full	923	1,0-14,0								
	932	1,0-1,5								
	970	1,0								

1150 A 3/12

full	1150	14,0								
	1160	1,0-4,0								
	1170	1,0-1,4								
	1190	1,0								

1150 A 3/19

full	1150	14,0								
	1180	9,7-10,6								
	1200	6,9-7,4								
	1240	1,2-4,0								
	1290	1,0								

1200 A 4/15

full	1200	1,0-14,0								
	1210	1,0-6,6								
	1220	1,0-1,5								
	1280	1,0								

--	--	--	--	--	--	--	--	--	--	--

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s

7. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 946 L
Komb.-Nr. 0 400 846 364

superseded 8.80
company: Daimler-Benz
OM 352 A
engine: 124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca 10	100	min.7,3	250	0,9-1,1
ca. 61	9,8 4,0 1700	1435-1445 1535-1565 0-1,0				400-600	300 570-630=2,0 750	5,7-5,9 max.1,0	640 030 425	3,3-3,7 5,9-6,2 8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445*	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

G12

G12

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A.. RS 2293 +RQV..AB9462	0,70	0,20 0	10,8-10,9 10,4-10,6 10,2-10,3

Notes

(1) when n

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 5

1. Edition

En

PES 6 A 90 D 410 RS 2293 ROV 300-1425 AB 947 L
Komb.-Nr. 0 400 846 365

superseder
company: Daimler-Benz
OM 352 A
engine: 124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8 4,0 1650	1435-1445 1530-1560 0 - 1,0				300-500 ③a	300 570-630 750 max.	5,7-5,9 = 2,0 1,0	640 1030 1425	3,3-3,7 5,9-6,2 8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

Testoil-ISO 4113

G14

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

G14

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7s5

-2-

Test at n **1375** rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2293 + RQV..AB 947 L	0,50	0,15 0	10,8 - 10,9 10,4-10,6 10,2-10,3

Note:

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 6

En

1. Edition

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 948 L
Komb.-Nr. 0 400 846 366

supersedes -
company Daimler-Benz
engine: OM 352 A
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min.7,3	250	0,9-1,1
ca. 66	9,8 4,0 1650	1435-1445 1530-1560 0-1,0				300-500	300 570-630 = 2,0 750	5,7-5,9 max.1,0	640 1030 1425	3,3-3,7 5,9-6,2 8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

G16

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

G16

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s 6

Test at n **1375** rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES6A..RS2293 + RQV..AB948L	0,50		10,8 - 10,9	
		0,15	10,6 - 10,7	
		0	10,4 - 10,5	

Notes:

(1) when n :

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 7

1. Edition

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 949 L
Komb.-Nr. 0 400 846 367

supersedes
company Daimler-Benz
engine OM 352 A
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
 $(2,10-2,30)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8 4,0 1650	1435-1445 1530-1560 0-1,0	-	-	-	300-500	300 570-630 750	5,7-5,9 = 2,0 max. 1,0	640 1030 1425	3,3-3,7 5,9-6,2 8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s 7

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB949L	0,70		10,8 - 10,9
		0,20	10,4 - 10,6
		0	10,2 - 10,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 1

5. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1138 I

Bosch-Dr. - Bosch-Dr. Bosch-Dr.

supersedes 8,82

company Daimler-Benz

engine

OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,1-2,3$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min. 9,2 7,6-7,8	250 600 1000 1400	0,9-1,1 3,1-3,4 5,5-5,7 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0 - 1,0				350-475				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) rev/min 1		Control-rod stop cm ³ /1000 strokes 2		Rotational-speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery idle switching point rev/min 6		cm ³ /1000 strokes 7		Torque-control travel rev/min 8		Control rod travel mm 9	
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-									

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

G20

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

G20

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 1

Test at n = rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	bar	mm (1)
PES 6 A..RS 2293 with ..AB 1138 L	0,70			11,3 - 11,4
		0		11,0 - 11,1
		0,28		11,1 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x

7. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L

Komb.-Nr. 0 400 846 475

supersedes 1.82

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	16,0-19,4	-	-	-	ca. 15	100	min.9,2	250	0,9-1,1
ca. 61	10,3	1435-1445					300	7,6-7,8	600	3,1-3,4
	4,0	1550-1580							950	5,3-5,5
	1650	0-1,0				350-475			400	8,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

Testoil ISO 4113

G22

G22

BOSCH

 Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor:	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB1140L	0,70	0	11,3 - 11,4
		0,28	11,0 - 11,1
			11,1 - 11,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 13,8 a
1. Edition

En

PE 6 P 100/420 LS 89 RSUV 250-600 P 8/321 R
Komb.-Nr. 0 401 876 057
Note VDT-I-401/103

supersedes -
company KHD
engine F 6 M 716

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC): 2,0-2,1

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

Testo ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm/rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca. 68	600 620 635	16,0 10,6 6,3	without auxiliary spring			ca. 32	250	8,0	580	0
	620 650 700	9,4-11,5 2,6-4,8 0 - 1,0				with auxiliary spring				60 250 280 330

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9		
	Take	from VDT-I-401/103				-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KM Kundendienst Kfz Ausrüstung
1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

G24

624

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 7

1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1141 L

Komb.-Nr. 0 400 846 476

supersedes

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in
Test ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min.9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

 Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
 c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

HA

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 7

- 2 -

Test at n **1375** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB1141L	0,70		11,3 - 11,4
		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 8

1. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1400 AB 1142 L
Komb.-Nr. 0 400 846 477

supersedes:
company: Daimler-Benz
engine OM 352 A
124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
(2,10,2,30)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min.9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 1300	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

5.84

H3

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 8

Test at n **1375** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)	
PES6A..RS2293 + RQV..AB1142L	0,70		11,3 - 11,4	
		0	11,0 - 11,1	
		0,28	11,1 - 11,2	

Notes

(1) when n

rev/min and gauge pressure -

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

****** PES 6 A 90 D 410 RS2345 RQ 275/1325 AB798D supersedes -
 PES 5 A 90 D 410 RS2344 RQV 275-1325 AB799D company: KHD Liz. TAM
 PES 4 A 90 D 410 RS2343 EP/RSV ... P616D engine: F6 L413R (8.8)
 Full-load tables are contained in the microfiches of PES..A..2416, 2417 and F5 L413R (7,4)
 2424 or in WPP test specifications KHD 8.8 a. F4 L413R (5,9)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,50-1,60} (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
200	6	1,6 - 2,6				
	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ..798D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point ①		Test specifications ④		Setting point		Test specifications ⑤		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
600	15,7-16,3	600	16,0	1350	13,5-13,9	550	0	100	7,1-8,1	700	15,6-16,0
				1400	7,5-11,7			200	5,8-7,6		
				1450	0 - 8,0			300	3,5-5,6	1050	13,9-14,2
				1540	0			460	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ mm 7
	**				100	17,0 - 17,6
						Change-over point RQV: 160-230 min ⁻¹

Checking values in brackets

Setting values for the governor

KHD 8,8 b

B)

RQV:

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

RQV 275-1325 AB799D

Torque-control travel

Maß a = 0,9 mm

ca. 68	1375 1630	15,0-18,0 0				ca. 12	200 400 600 750 850	6,4-8,2 2,8-4,6 1,5-3,0 0 - 1,4 0	1375 1325 500	8,3 0 0,8-1,0
ca. 66	1325 1410 1490 1600	15,0-17,5 7,4-13,0 0 - 8,0 0								

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

H6

B)

EP/RSV

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque	control travel
1	2	3	4	5	6	7	8	9	10	11

300-750 A7 B616D

ca.48	750	16,0	without auxiliary spring			ca.24	300	6,0	730	0
	800	8,0					125	19-21		
	820	4,2	with auxiliary spring				300	5,7-6,3	350	0,7-0,9
	785	9,4-11,6					450	0,6-3,2		
	810	4,8- 7,7					560	0 - 1		
	940	0,3- 1,0								

300-900 A7 B616D

ca.60	900	16,0	without auxiliary spring			ca.27	300	6,0	880	0
	950	9,8					100	19-21		
	975	6,0	with auxiliary spring				300	5,7-6,3	400	0,9-1,1
	950	8,6-10,9					450	0,8-3,3		
	1000	2,8- 4,7					600	0 - 1		
	1100	0,3- 1,0								

300-1000 A8 B616D

ca.50	1000	16,0	without auxiliary spring			ca.21	300	6,0	980	0
	1050	11,7					150	19-21		
	1100	6,5	with auxiliary spring				300	5,7-6,3	400	0,9-1,1
	1050	10,8-12,6					500	1,2-3,6		
	1120	4,0- 6,0					650	0 - 1		
	1270	0,3- 1,0								

300-1150 A8 B616D

ca.58	1150	16,0	without auxiliary spring			ca.22	300	6,0	1130	0
	1200	11,8					150	19-21		
	1250	7,0	with auxiliary spring				300	5,7-6,3	400	0,9-1,1
	1200	11,0-12,8					450	2,7-4,3		
	1300	2,7- 4,7					650	0 - 1		
	1430	0,3- 1,0								

300-1325 A8 B616D

ca.68	1325	16,0	without auxiliary spring			ca.24	300	6,0	1310	0
	1400	9,4					150	19-21		
	1440	5,0	with auxiliary spring				300	5,7-6,3	450	0,9-1,1
	1400	8,3-10,5					450	2,3-4,4		
	1450	3,0- 4,7					650	0 - 1		
	1600	0,3- 1,0								

H7

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 12,8 g

2. Edition

En

PE 8 A 90 D 320 LS 2372 RQV 250-1250 AB 1186 R

supersedes 10.83

Komb.-Nr. 0 400 648 136

company: MAN

D 2538 ME

engine: 188 kW/2500 min⁻¹

MAN-Nr. 2-7187

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5 - 1,6}{(1,45 - 1,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,5+0,1	10,3-10,4	0,3(0,5)			
250	5,9-6,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	2a	4	5	6	4	7	8	9	3a	10	11	
max.	1290	15,2-17,8		-	-	-		ca. 12	100	min. 7,5		200	0,7-0,9	
									250	5,9-6,1		550	3,9-4,2	
									320-380	=2,0		1000	5,9-6,3	
												1350	9,4	
ca. 45	9,5	1290-1300												
	4,0	1340-1370												
	1500	0 - 1,0												

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	102,5-103,5 (100,5-105,5)	1290-1300*	800	96,5-98,5 (94,0-101,0) max. 94,0 (max. 96,5)	100	133,0-143,0 (130,0-146,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

H8

H8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 k

2. Edition

PES 6 A 95 D 410 RS 2416

En
RSV 325-1100 A 8 B 2040 L

supersedes 9.83

company KHD

engine BF6L413 FR
Schlepper DX 230,
147 kW/2200 min⁻¹

Komb.-Nr. 0 400 876 279

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,75-1,85
Port closing at prestroke (1,70-1,90) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,6+0,1	11,2-11,4	0,3 (0,6)			
325	5,4-5,6	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min, Degree of deflection of control lever			Intermediate rated speed			4 Control lever deflection in degrees			Lower rated speed		3 Torque control		
1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	rev/min	Control rod travel mm	8	9	10	Control rod travel mm	11
loose	800	0,3-1,0	-	-	-	ca. 16	325	5,5	1100	10,6-10,7			
	X = 4,0						100	min. 19,0	550	10,6-10,8			
							325	5,9-6,1	375	11,8-12,4			
ca. 49	9,6	1140-1150					440-500	= 2,0					
2a	3,7	1165-1195					600	max. 1,0					
	1330	0,3-1,7											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 C (104 F)		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,5 bar 111,5-113,5 (109,5-115,5)	1140-1150*	LDA 900	0,5 bar 114,0-117,0 (112,0-119,0)	100	120,0-130,0 = 13,4 - 14,0 mm RW	0	-
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 K

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel:	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES6A..RS2416 + RSV..A8B 2040L	0,24	0,49	9,6-9,9	
		0,35	10,6-10,7	
		0	10,3-10,4	
			9,5-9,6	

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4

KHD 1 e

2. Edition

En

Testoil-ISO 4113

PE 3 A 95 D 410 LS2447 RQV.. AB397
 PE 10 A95 D610/4LS2448 RQV.. AB896
 PE 12 A 95 D610 LS2449 RQV.. AB896, 1002, 1032

supersedes 8.77
 company K H D
 engine BF 8 L 413 F
 10
 12

Please note instructions on sheet 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 - 1,9 mm (from BDC) s. a. S. 2 !

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
200	6	3,2 - 4,2				
		6	0,5 - 1,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
page	3									

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40° C (104° F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
page	4 - 9							

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
 Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

3.78

H11

H11

NOTES1. Complete type designation:

PE 8 A 95 D 410 LS2447	RQV 300-1250 AB897L 300-1325
PE 10 A95D610/4 LS2448	RQV 300-1325 AB896L 300-1250 300-1150
PE 12 A 95 D610 LS2449	RQV 300-1250 AB896L 300-1250 AB1002L 750 AB1032L

2. Concerning Section A - cam sequence and angular cam spacing:

<u>8 Cyl.</u>	1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 - 1 0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 360°
<u>10 Cyl.</u>	1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 - 1 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 - 360°
<u>12 Cyl.</u>	1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 - 1 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

3. Concerning Sections C and D - Full-load delivery setting and manifold-pressure compensator setting:

Given in Section C in Column 1 is the engine speed/min., in Column 2 the pressure in bar, and in Column 3 the fuel delivery in cm³/1000 lifts, in the sequence

Full-load delivery with charge-air pressure
Full-load delivery without charge-air pressure
as well as starting fuel delivery.

In Section D - Columns 5 - 7 = manifold-pressure compensator adjustment - the stated charge-air pressure is set at the respective engine speed and with falling pressure. The data in the second row are for adjusting the spring preload of the manifold-pressure compensator spring, i.e. this spring is to be preloaded so that the stated pressure (Column 6) is reached with 0.1...0.2 mm control-rod travel reduction (Column 7).

Further information on adjusting the manifold-pressure compensator is contained in W 420/304.

Setting values for the governor RQV..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	control travel mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 AB896L, 897L

ca. 68	1350	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2		
	1430	8,3-13,0					300	4,9-7,1			800	3,6-4,1
	1520	0 -6,6					500	2,7-4,2				
	1600	0					890	0			-	-

300-1250 AB896L, 897L, 1002L

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3		
	1380	6,3-12,4					300	4,9-7,1			800	3,8-4,2
	1450	0 -7,2					500	2,3-4,8				
	1540	0					840	0			-	-

300-1150 AB896L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	150	8,0-9,0	250	0,3-1,3		
	1220	8,4-13,6					300	4,8-7,0			700	3,6-4,1
	1300	0 -6,5					500	0 -1,2				
	1370	0					780	0			-	-

780 AB1032L

ca. 37	10,0	750-755								750	5,9
	4,0	765-780								-	-

--	--	--	--	--	--	--	--	--	--	--	--

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2		3	4	5	6	7	8	
1. 235 kW/320 PS / 2650/min			- RQ 300/1325 ABV 12830						
1325	0,8	110,5 - 112,5		1325		0,8		**	
500	0	64,5 - 66,5		875		0,4		-0,1-0,2	
100	-	126,5 - 136,5		500		0			
2. 235 kW/320 PS / 2500/min			-RQ 300/1250 ABV 12831						
1250	0,75	110,5 - 112,5		1325		0,75		**	
500	0	64,5 - 66,5		875		0,40		-0,1-0,2	
100	-	126,5 - 136,5		500		0			
3. 222 kW/302 PS / 2500/min			-RQ 300/1250 ABV 13686 D						
1250	-	113,5 - 115,5	Special governor mounting, no manifold-pressure compensator a = 0,2 mm						
4. 235 kW/320 PS / 2650/min			-RQV 300-1325 AB 897 L (V 12826)						
1325	0,8	109,5 - 111,5	1365-1375*	1325		0,8		**	
500	0	77,5 - 79,5		850		0,35		-0,1-0,2	
100	-	126,5 - 136,5		500		0			
5.1-245 kW/333 PS / 2500/min			-RQV 300-1250 AB 897 L (V 12252)						
2-235 kW/320 PS / 2500/min			-						
3-211 kW/286 PS / 2500/min			-						
1. 1250	0,8	113,5 - 115,5	1290-1300*						
2. 1250	0,8	110,5 - 112,5		1250		0,8		**	
3. 1250	0,7	101,5 - 103,5		875		0,35		-0,1-0,2	
500	0	64,5 - 66,5							
100	-	126,5 - 136,5		500		0			
6.1-222 kW/302 PS / 2300/min			-RQV 300-1150 ABV 12827						
2-190 kW/258 PS / 2300/min									
1. 1150	0,65	112,5 - 114,5	1190-1200*	1150		0,50		**	
2. 1150	0,50	99,5 - 101,5		875		0,36		-0,1-0,2	
500	0	64,5 - 66,5		500		0			
100	-	126,5 - 136,5							
7. 212 kW/288 PS / 2300/min			-RQV 1150 ABV 13864						
1150	-	106,5 - 108,5		1150					

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
8. 204 kW/277 PS / 2150/min			-		RQV 1075 ABV 13683			
1075	-	107,5 - 109,5	1090					
100		116,5 - 126,5						
9. 178 kW/242 PS / 1800/min			-		RQV 300-900 ABV 13689			
900	0,4	106,5 - 109,5	940-950*		900	0,40	**	
500	0	67,5 - 69,5			875	0,35	-0,1-0,2	
100	-	126,5 - 136,5			500	0		
10. 143 kW/194 PS / 1500/min			-		RQV 300-750 ABV 13685			
750	0,3	103,5 - 105,5	790-800*		750	0,30	**	
500	0	67,5 - 69,5			725	0,28	-0,1-0,2	
100	-	116,5 - 126,5			500	0		

Testoil-ISO 4113

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. 294 kW/400 PS / 2650/min - RQ 300/1325 AB 963 (V 12832)								
1325	0,8	110,5-112,5		1325	0,8		**	
500	0	64,5- 66,5		875	0,4		-0,1-0,2	
100	-	126,5-136,5		500	0			
2. 294 kW/400 PS / 2500/min - RQ 300/1250 AB 963 (V 12833)								
1250	0,75	110,5-112,5		1250	0,75		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
3. 278 kW/378 PS / 2500/min - RQ 300/1250 ABV 13407 D a = 0,2								
1250	-	105,5-107,5						
100		126,5-136,5						
4. 294 kW/400 PS / 2650/min - RQV 300-1325 AB 896 L (V 12828)								
1325	0,8	110,5-112,5	1365-1375*	1325	0,80		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
5. 294 kW/400 PS / 2500/min - RQV 300-1250 AB 895 L (V 12076)								
1250	0,75	110,5-112,5	1290-1300*	1250	0,75		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
6. 278 kW/378 PS / 2300/min - RQV 300-1150 AB 896 L (V 12744)								
1150	0,65	112,5-114,5	1190-1200*	1150	0,65		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
7. 265 kW/360 PS / 2300/min - RQV 1150 ABV 13188								
1150	-	106,5-108,5	1160					
100		126,5-136,5						
8. 255 kW/374 PS / 2150/min - RQV 300-1075 ABV 13221								
1075	0,5	107,5-109,5	115-1125*	1075	0,50		**	
500	0	64,5- 66,5		850	0,35		-0,1-0,2	
100		126,5-136,5		500	0			

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-7-

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
9. 255 kW/347 PS / 2150/min			- RQV 1075 ABV 13755					
1075	-	107,5 - 109,5	1085					
100	-	126,5 - 136,5						
10. 243 kW/330 PS / 2000/min			- RQV 300 - 1000 ABV 13393					
1000	0,46	107,5 - 109,5	1040-1050*	1000	0,46		**	
500	0	64,5 - 66,5		875	0,38		-0,1-0,2	
100	-	126,5 - 136,5		500	0			
11. 223 kW/303 PS / 1800/min			- RQV 300/650-900 ABV 13166					
900	0,40	106,5 - 109,5	940-950*	900	0,40		**	
500	0	64,5 - 66,5		850	0,35		-0,1-0,2	
100	-	126,5 - 136,5		500	0			
12. 223 kW/303 PS / 1800/min			- RQV 900 ABV 13754					
900	-	107,5 - 109,5	910					
100	-	126,5 - 136,5						
13. 179 kW/243 PS / 1500/min			- RQV 300/525 - 750 ABV 13165					
750	0,3	103,5 - 205,5	790-899*	750	0,30		**	
500	0	64,5 - 66,5		725	0,28		-0,1-0,2	
100	-	126,5 - 136,5		500	0			

** Full load

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1.	353 kW/480 PS	/ 2500/min	- RQ	300/1250	ABV	13407	D	a = 0,2mm
1250	110,5	- 112,5	600					
100	116,5	- 126,5						
<hr/>								
2.1 -353 kW/480 PS / 2650/min		- RQV 300-1325 AB 896 L (V 12828)						
2 -335 kW/455 PS / 2650/min				1.	2.			
1.	1325	0,8	110,5-112,5	1365-1375*	1325	0,8	0,6	**
2.	1325	0,6	105,5-107,5		875	0,4	0,38	-0,1-0,2
	500	0	64,5- 66,5		500	0	0	
	100	-	126,5-136,5					
<hr/>								
3.1 -353 kW/480 PS / 2500/min		- RQV 300-1250 AB 896 L (V 12076)						
2 -315 kW/428 PS / 2500/min								
1.	1250	0,75	110,5-112,5	1290-1300*	1250	0,75	0,55	**
2.	1250	0,55	101,5-103,5		875	0,36	0,36	-0,1-0,2
	500	0	64,5- 66,5		500	0	0	
	100	-	126,5-136,5					
<hr/>								
4. 320 kW/435 PS / 2500/min		- RQV 300-1250 AB 1002 (V13584)						
1250	0,7	102,5-104,5	1290-1300*	1250	0,70		**	
500	0	64,5- 66,5		850	0,33		-0,1-0,2	
100	-	126,5-136,5		500	0			
<hr/>								
5.1 -335 kW/455 PS /2300/min		- RQV 300-1150 AB 890 L (V 12744)						
2 -286 kW/389 PS /2300/min								
1.	1150	0,65	112,5-114,5	1190-1200*	1150	0,65	0,50	**
2.	1150	0,50	99,5-101,5		875	0,40	0,36	-0,1-0,2
	500	0	74,5- 76,5		500	0	0	
	100	-	126,5-136,5					
<hr/>								
6. 318 kW/432 PS / 2300/min		- RQV 300-1150 AB 962 L (V 13687)						
1150	-	106,5-108,5	1190-1200*					
100		116,5-126,5						
<hr/>								
7. 318 kW/432 PS / 2300/min		- RQV 1150 ABV 13188						
1150	106,5-108,5		1160					
100	116,5-126,5							
<hr/>								
8. 306 kW/416 PS / 2150 min		- RQV 1075 ABV 13755						
1075	107,5-109,5		1085					
100	116,5-126,5							

Testoil-ISO 4113

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

<u>9.1-306 kW/416 PS / 2150/min</u>		-		RQV 300-1075 AB13221				
<u>2-275 kW/374 PS / 2150/min</u>						1. 2.		
1. 1075	0,5	107,5 - 109,5	1115-1125*	1075	0,50	0,46	**	
2. 1075	0,46	98,5 - 100,5		875	0,38	0,36	-0,1-0,2	
500	0	64,5 - 66,5		500	0	0		
100		126,5 - 136,5						

<u>10. 292 kW/397 PS / 2000/min</u>		-		RQV 300-1000 ABV13393				
1000	0,46	107,5 - 109,5	1040-1050*	1000	0,46		**	
500	0	64,5 - 66,5		875	0,38		-0,1-0,2	
100	-	126,5 - 136,5		500	0			

<u>11. 292 kW/397 PS / 2000/min</u>		-		RQV 300-1000 ABV 13550				
1000	-	107,5 - 109,5	1040-1050*					
100		126,5 - 136,5						

<u>12. 268 kW/364 PS / 1800/min</u>		-		RQV 300-900 ABV 13549				
900	-	107,5 - 109,5	940-950*					
100		126,5 - 136,5						

<u>13. 268 kW/364 PS / 1800/min</u>		-		RQV 300 ABV 13754				
900		107,5 - 109,5	910					
100		126,5 - 136,5						

<u>14.1-268 kW/364 PS / 1800/min</u>		-		RQV 300/650-900 ABV 13166				
<u>2-241 kW/328 PS / 1800/min</u>								
1. 900	0,4	107,5 - 109,5	940-950*	900	0,4		**	
2. 900	0,35	97,5 - 99,5		850	0,35		-0,1-0,2	
500	0	64,5 - 66,5		500	0			
100	-	126,5 - 136,5						

<u>15.1-215 kW/292 PS / 1500/min</u>		-		RQV 300/525-750 ABV 13165				
<u>2-194 kW/264 PS / 1500/min</u>								
1. 750	0,3	103,5 - 105,5	790-800*	750	0,3		**	
2. 750	0,28	93,5 - 95,5		725	0,25		-0,1-0,2	
500	0	64,5 - 66,5		500	0			
100	-	126,5 - 136,5						

<u>16. 215 kW/292 PS / 1500/min</u>		-		RQV 750 ABV 13464				
750	-	103,5 - 105,5	760					
100		116,5 - 126,5						

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 q
1. Edition

En

PE 8 A 95 D 410 LS 2451 RQV 300-800/1100 AB 973 DL

supersedes -
company:
engine.

KHD-Köln
F 8 L 413 F
162 kW /
2200 min⁻¹

The values given in KHD 1 d to not apply, since change of governor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,00-2,10}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4-9,5	8,7 - 8,9	0,3(0,6)			
300	5,4-5,6	0,6 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	ca. 53			ca. 11	100	min. 7,0	300	1,2-1,3
ca. 64	8,4 4,0 1350	1140-1150 1205-1235 0 - 1,5		8,5 4,0	695-705 755-785		300 650 495-555= 2,0	5,4-5,6 max. 1,0 2,0	450 850 1140	2,7-3,1 7,5-7,7 8,8

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics 5a high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control 5 travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	86,5-88,5 (84,5-90,5)	1140-1150*	700 400	88,5-92,5 (86,5-94,5) max. 84,5 (max. 86,5)	100 100-220	110,0-120,0 bei 13,2 - 14,2 mm RW (80-240)	1100 800 500	9,4-9,5 9,8-10,0 10,1-10,3

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.82

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 12,7 r
2. Edition

En

PE 8 A 95 D 410 LS 2451 RSV 300-1325 A8B 1002 DL
Komb.-Nr. 0 400 678 040 A8C 1002 DL

supersedes 8.83
company KHD
engine F 8 L 413 F

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(1) 188 kW (255 PS) bei n=2650min⁻¹
(2) 157 kW (213 PS) bei n=2300min⁻¹

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1325	9,7-9,8	9,2-9,4	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,5(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Testöl: SO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-1,0 X = 4,75	-	-	-	ca. 20	300	6,0	1325	9,7-9,8
ca. 63	8,7	1365-1375					100	min 19,0	500	10,0-10,1
(2a)	4,0	1420-1450					300	5,9-6,1		
	1575	0,3-1,7					520-580	= 2,0		
							700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
(1)	1325	91,5-93,5 (89,5-95,5)	1365-1375*	-	-	100	116,5-127,5 =14,0- 14,4 mm RW	-	-
(2)	1150	83,0-85,0 (81,0-87,0)	1190-1210*						

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

H21

H24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 6,2 c 2
2. Edition

En

PES 6 A 90 D 320/3 RS 2464-1

RSV 325-1200 AOB 2182 R
AOC 2182 R

supersedes 6.83
MWM
company TD 226-6
engine 107 kW

Komb.-Nr. 0 400 866 115

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ Port closing difference between control-rod travel 9mm
($2,10-2,30$) and max. $3,5 - 4,5^\circ$ camshaft

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,6±0,1	7,5-7,6	0,3(0,45)			
325	7,4-7,6	0,5-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	325	7,0	1180	10,6-10,7
	$\chi = 3,0$						325	7,4-7,6	500	11,5-11,6
ca. 44	9,6	1240-1250					505-565	= 2,0	875	11,0-11,2
2a	4,0	1290-1320								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9	8	9
LDA 1200	0,7 bar 74,5-75,5 (72,5-77,5)	1240-1250*	LDA 500	0 bar 59,5-60,5 (57,5-62,5)	100	113,0-123,0 (110,0-126,0) = 19,5- 21,0 mm RW	0 - 0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

D. Adjustment Test for Manifold Pressure Compensator

MWM 6,2 c 2

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm	(1)
PES6A..RS2464-1 + RSV..A0B2182R	0,70	0	11,5-11,6	
		0,14	11,0-11,1	
		0,13	11,3-11,4	
			11,1-11,3	

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 13,8 b 1

1. Edition

En

PE 6 P 110/42Q LS 89 RSV 250-1000 P 7/312 R

Values only apply to test nozzle-and-holder assembly 0 681 443 022 and fuel-injection test tubing 1 680 750 060

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company KHD

engine F 6 M 716

KOMb.-Nr. 0 401 876 067

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees	Lower rated speed		③ Torque control			
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 68	1000	16,0	without auxiliary spring			ca. 28	300	6,0	980	0		
	1050	9,0							100	19-21	450	0
	1080	4,0							300	5,7-6,3	340	1,2-1,8
②a	1050	7,0-10,0	with auxiliary spring				350	3,2-4,5				
	1100	1,5-3,8							450	0-1,0		
	1180	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40 °C (104 °F)		⑥ Rotational speed limit Note changed to rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Take	from VDT-I-401/103				-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

H24

H24

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 h

5. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS2485 RQV 250-1100 AB850D (1)
 LS2485Z RQV 250-1100 AB850D (2)
 LS2485 RQV 750 AB955 (3)
 Komb.-Nr. (1) 400 846 371 (1) MAN-Nr. 1-7727
 (2) 400 846 403 (2) MAN-Nr. 1-7842
 (3) 400 846 376 (3) MAN-Nr. 1-7738

supersedes 3.84
 company M A N
 engine D 2566 M..
 (1) M/MF-177 kW/2200 min⁻¹
 (2) MSFV-162 kW/2200 min⁻¹
 (3) ME-126 kW/1500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC)
 (1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery 2485 cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery 2485Z cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,7+0,1	12,3 - 12,5	0,3(0,6)	11,0+0,1	11,2 - 11,4	
250	5,9-6,1	1,1 - 1,7	0,3(0,5)	5,6-5,8	0,9 - 1,5	

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

2485 mit 850D (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140 1200 1220 1300	14,4-17,6 4,0-10,6 0 - 8 0 - 1	-	-	-	ca. 13	100 200 300 410	7,5-10,2 5,7-8,5 2,5-5,3 0	200 600 1140	0,5-2,2 3,8-4,1 8,3
									1140 550	0 0,4-0,6

Torque control travel a 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1100 (1)	123,0-125,0 (121,0-127,0)	1140-1150 *	500	113,5-118,5 (111,5-120,5)	100	108,5-116,5 = 12,6-13,0 mm RW	-	-
					250	6,0 mm RW		
					130-190(120-200)			./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
 1980 by Robert Bosch GmbH, Postfach 50 D 7000 Stuttgart 1. Printed in the Federal Republic of Germany
 Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

7.84

J1

J1

B. Governor Settings

2485 Z + RQV..850 D

MAN 11,1 h

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	1140	14,4-17,6	-	-	-	ca.13	100	min. 7,4	200	0,7-0,9	
ca.42	10,0 4,0 1300	1140-1150 1175-1205 0-1,0						250 310-370 450	5,6-5,8 =2,0 max.1,0	500 800 100	3,5-3,8 4,9-5,4 7,7

Torque control travel a 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100 (2)	111,5-113,5 (109,5-115,5)	1140-1150*	800 500	114,5-118,5 (112,5-120,5) 111,5-113,5 (109,5-115,5)	100	13,7-14,3 mm RW	1100 800 500	11,0+0,1 11,4+0,2 11,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

2485 + RQV..955

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 29	725 750 770 800	16,0-22,0 9,3-13,8 2,5-11,0 0							750	4,6

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
725 (3)	122,5-124,5 (120,5-126,5)	765-770*	-	-	-	-	200	7,0-11,0

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS 2450 | RQ...929,930,984D, 986D,987D
 PE 8 A 95 D 410 LS 2451 | RQV...898,931,973,974,975
 PE 10 A 95D 510/4 LS 2452 | 976,983D,988D, 990D,
 PE 12 A 95 D 610 LS 2453 | 936,999, 1006D, 1009, 1014,
 1016,1020,1021,1026D
 EP/RSV...1002D, 1084

supersedes **278**
 company **K H D**
 engine **F 6 L 413F/ FW**
 8
 10
 12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,0-2,1** mm (from BDC) Please note instructions on sheet 2

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever: 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
page	3-8									

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
page	9 - 22							

Checking values in brackets

* 1 mm less control rod travel than col 2

INSTRUCTIONS

1. Contents

	page
Section A	1
Instructions for testing	2
Section B - RQ governor	3
- RQV governor	4-7
- RSV governor	8
Section C - Standard - 6 - 12 cyl.	9
- 6-cyl. with RQ, RQV, RSV	10-12
- 6-cyl. -FW with RQV	12
- 8-cyl. with RQ, RQV, RSV	13-16
- 8-cyl. -FW with RQV	15
- 10-cyl. with RQ, RQV	17-19
- 10-cyl. -FW with RQV	19
- 12-cyl. with RQ, RQV	20-22
- 12-cyl. -FW with RQV	22

2. Cam sequence and angular cam spacing

6 cyl. 1 - 6 - 5 - 4 - 3 - 2 - 1

0 - 75 - 120 - 195 - 240 - 315 - 360°

8 cyl. 1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 - 1

0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 360°

10 cyl. 1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 - 1

0-27-72-99-144-171-216-243-288-315-160°

12 cyl. 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 - 1

0-15-60-75-120-135-180-195-240-255-300-315-360°

3. Instructions for testing

to Section B:

Torque control dimension a = .. -section C, column 8 as required for trials no. for pre-adjustment. Final dimension to be set according to fuel-delivery characteristics in Section C, column 4-5. Further instructions for trials no. will follow on a separate information sheet.

to Section C:

If supplied, the control-rod stop with RQV governors must be set with a torque control of $n = 600/\text{min}$.

B. Governor Settings

RQ..

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications		Control rod	
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12

300 1325 AB 929L, 930L

650	15,6-16,0	650	16,0	1350	15,6-16,0	580	0	200	6,4-8,1	-	-
				1400	5,0-12,2			300	4,4-6,5		
				1440	0 - 7,0			400	1,2-3,5		
				1500	0 - 1,5			480	0		

Torque control travel on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

300/1250 AB 929L

650	15,6-16,0	650	16,0	1270	15,6-16,0	580	0	200	6,3-8,1	-	-
				1300	10,0-14,8			300	4,2-6,2		
				1350	0 - 8,0			400	0,8-3,2		
				1420	0 - 1,5			480	0		

Torque control travel on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

300/1250 AB984DL, 987DL

650	15,6-16,4	650	16,0	1290	13,0-15,4	570	0	200	6,5-8,1	750	15,8-16,0
				1320	6,0-13,7			350	2,8-5,0	900	15,3-15,6
				1340	0 - 10			410	0,6-3,2		
				1420	0			470	0		

Torque control travel on flyweight assembly dimension a 0,2 mm Speed regulation At 1 mm less control rod travel

300/1250 AB986DL

650	15,6-16,4	650	16,0	1300	11,0-15,0	660	0	200	6,1-8,2	800	15,6-15,9
				1320	6,4-12,5			300	4,0-6,0	950	15,0-15,4
				1340	0 - 9,6			410	0 - 2,4		
				1420	0			560	0		

Torque control travel on flyweight assembly dimension a 0,3 mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque control travel on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

B Setting values for the governor RQV

KHD 1 d

- 4 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 AB 898L

ca. 68	1350	15,0-18,0	-	-	-	ca.12	200	7,5-9,0	250	0,3-1,2		
	1430	8,3-13,0					300	4,9-7,1			800	3,6-4,1
	1520	0 - 6,6					500	2,7-4,2			1350	8,2
	1600	0					890	0			-	-

300-1250 AB 898L

ca. 68	1300	14,5-17,6	-	-	-	ca.12	200	7,3-9,0	250	0,3-1,3		
	1380	6,8-12,4					300	4,9-7,1			800	3,4-4,2
	1450	0 - 7,2					500	2,3-4,8			1290	8,2
	1540	0					840	0			-	-

300-1150 AB 898L

ca.68	1160	15,0-18,0	-	-	-	ca.12	200	7,3-9,0	250	0,3-1,3		
	1220	8,2-13,6					450	2,7-4,1			1160	8,3
	1290	0 - 7,3					650	0,7-1,8			-	-
	1370	0					800	0			-	-

300-1075 AB 898L

ca. 68	1160	15,0-18,0	-	-	-	ca.12	200	7,5-9,0	250	0,3-1,2		
	1240	8,0-13,2					300	5,1-7,0			700	4,0-4,5
	1320	0 - 7,2					500	1,1-2,4			1170	8,3
	1400	0					710	0			-	-

300/725-1075 AB 931L

ca.68	1075	15,0-17,3	ca.48	700	11,6-16,5	ca.12	140	6,8-8,2	200	0,2-0,8		
	1100	11,0-15,4		800	7,0-11,4		300	4,7-6,1			400	1,9-2,1
	1160	0 - 7,4		900	1,7- 4,5		450	3,6-4,0			650	1,9-2,6
	1220	0		950	0		700	1,7-3,9			900	4,6-5,2
							830	0			1075	8,5
								-	-			

J6

En

J6

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-800/100 AB 9730L

Torque-control travel Maß a = 0,7 mm

ca. 50	1180	15,0-18,4	ca. 27	600	11,8-14,7	ca. 13	150	8,4-11,5	200	0,5-1,2
	1250	6,8-12,0		700	7,6-10,3		250	5,7-8,8	600	3,2-3,6
	1300	0 - 7,6		840	0 - 2,4		420	0 - 3	1050	7,4-7,6
	1380	0		880	0		530	0	1170	8,3
									650	0
									400	0,7

300-1325 AB 974 L

ca. 66	1325	15,0-17,8	-	-	-	ca. 10	150	6,6-8,0	1325	8,3
	1400	3,3-12,9					300	4,6-6,1		
	1480	0 - 6,8					450	2,7-3,8		
	1560	0					600	1,8-3,2		
							860	0		

300-985/1325 AB 975L

ca. 68	1350	12,0-16,0	ca. 61	900	12,4-15,3	ca. 12	100	6,8-8,0	460	2,0-2,5
	1420	4,4-11,0		1000	5,4-8,1		250	5,6-7,2	1300	8,5
	1460	0 - 8,0		1100	0,5-1,0		400	3,3-4,8		
	1560	0		1300	0,5-1,0		600	0,8-2,2		
							710	0		

RQV 300-1325 AB976L

ca. 68	1350	15,2-17,8	-	-	-	ca. 12	100	min. 8	300	1,2-1,3	
	1700	0 - 1					300	5,4-5,6	600	4,4-4,6	
ca. 59	1375	9,4-10,4						400	1,5-3,7	1350	8,3
	1475	2,7-4,6						500	0 - 1		
									-	-	

--	--	--	--	--	--	--	--	--	--	--

Setting values for the governor

B.

RQV

KHD 1 d

- 6 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1250 AB983DL, 990DL

Torque-control travel Maß a = 0,5 mm

ca. 66	1290	15,0-18,0	-	-	-	ca. 12	100	7,6-8,6	1290	8,3
	1370	7,5-12,7					300	5,2-6,6		
	1440	0 - 7,7					600	2,0-3,2	1200	0
	1530	0					850	0		

300-1075 AB988DL

Torque-control travel Maß a = 0,5 mm

ca. 68	1100	15,0-18,0	-	-	-	ca. 12	100	5,2-8,0	1100	8,3
	1190	4,1-10,4					300	4,4-6,2		
ca. 66	1075	15,0-18,0	-	-	-	ca. 12	500	1,8-3,3	1075	0
	1140	8,0-13,0					720	0		
	1200	0 - 8								
	1280	0								

RQV 300-1075 AB988DL

Torque-control travel Maß a = 0,5 mm

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1240	8,0-13,2					300	5,1-7,0		
	1320	0 - 7,2					500	1,1-2,4	1080	0
	1400	0					710	0		

RQV 1150 AB999L (V13274)

ca. 48	1100	14,6-20,5	-	-	-	-	-	-	-	1150	5,4
	1150	8,3-13,0									
	1200	0 - 4,5									

RQV 300-1000 AB1006DL (V13121D)

Torque-control travel Maß a = 0,5 mm

ca. 68	1100	14,0-17,6	-	-	-	ca. 12	200	7,5-8,9	250	0,3-1,1
	1180	6,2-12,0					300	4,5-7,0		
	1250	0 - 6					450	1,0-2,3	1080	8,2
							650	0		
						1000	0			
						600	0,5-0,6			

J8

Setting values for the governor

3)

RQV

KHD 1 d -7-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 300/525-750 AB1009L (V13157)

ca. 68	760	15,0-18,4	ca. 52	525	14,0-20,0	ca. 12	175	7,1-8,2	250	0,3-1,2	
	800	4,2-11,0		600	7,9-12,2		300	4,0-6,3		400	1,9-2,1
	815	0 - 8,0		650	3,0-6,2		400	3,6-4,0		600	3,7-4,5
	850	0		700	0		600	0		760	8,3
									-	-	

RQV 300-800/1325 AB1014L

ca. 46	1330	18,0-21,6	ca. 30	600	11,9-14,3	ca. 10	100	9,4-12,2	150	0,8-1,4	
	1420	9,2-14,8		720	6,6-9,0		300	4,1-7,9		700	4,0-4,4
	1500	0 - 8		840	0 - 2,3		400	0 - 3		1020-	7,4-7,6
	1590	0		880	0		510	0		1300	7,8
									-	-	

RQV 300/800-1150 AB1016L (V12264), 1021 (V13155)

ca. 66	1160	15,0-18,4	ca. 48	760	11,2-16,4	ca. 12	200	6,1-7,7	250	0,5-1,2	
	1200	8,4-13,8		850	7,6-11,8		450	3,6-4,0		400-	1,9-2,1
	1250	0 - 7,6		950	2,8-5,6		650	3,3-4,0		600	
	1310	0		1030	0		900	0		160	8,2
									-	-	

RQV 300/650-900 AB1020L (V12263)

ca. 66	910	15,0-18,4	ca. 48	610	11,6-16,5	ca. 12	200	5,8-8,2	250	0,3-1,0	
	980	0 - 7,5		700	6,0-9,8		400	3,6-4,6		450-	1,9-2,1
	1020	0		790	0 - 2,0		600	1,8-4,0		500	
				810	0		720	0		910	8,3
									-	-	

RQV 300-1250 AB1026DL

Torque-control travel

Maß a = 0,5 mm

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3	
	1380	5,8-12,4					300	4,9-7,1		800	3,8-4,2
	1450	0 - 7,2					500	2,3-4,8		1290	8,2
	1540	0					840	0			
									1250	0	
									500	0,5-0,6	

J9

Setting values for the governor

B.

EP/RSV..

KHD 1 d

-8-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 A8 B 1084L

ca.69	1325	16,0	without auxiliary spring			ca.23	300	6,0	1300	0		
	1400	7,7					100	19,0-21,0				
	1450	1,0					300	5,7-6,3			350	1,2-1,8
	1370	10,4-12,3					450	0,8-2,9				
	1430	2,8-6,0					600	0 - 1,0				
	1550	0,3-1,0										

300-1000 A7 B1002DL

ca.72	1000	16,0	without auxiliary spring			ca.23	300	6,0	980	0		
	1030	12,6					100	19 - 21				
	1070	5,4					300	5,7-6,3			400	0,8-1,0
	1050	7,0-10,2					400	3,0-4,4				
	1100	2,0-4,4					550	0 - 1				
	1200	0,3-1,0										

300-1325 A8 B1002DL

ca.69	1325	16,0	without auxiliary spring			ca.25	300	6,0	1300	0		
	1380	10,2					150	19 - 21				
	1420	5,4					300	5,7-6,3			450	0,8-1,0
	1330	ca.10,5					500	1,7-3,8				
	1370	ca. 9,5					700	0 - 1				
	1520	0,3-1,0										

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

J10

J10
En

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 6 L 413 F - 141 kW/192 PS / 2650/min								
1325	91,5 - 93,5		RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129
F 8 L 413 F - 188 kW/192 PS / 2650/min								
1324	91,5 - 93,5		RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129
F 10 L 413 F - 236 kW/320 PS / 2650/min								
1325	91,5 - 93,5		RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129
F 12 L 413 F - 284 kW/384 PS / 2650/min								
1325	91,5 - 93,5		RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129

Testoil-ISO 4113

Caution: These changed values apply to governors without torque control

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

192 PS / 2650 min - RQ 300/1325 AB 929 L
 1325 91,5-93,5 600 400 max. 84,5 100 119-129

192 PS / 2500 min - RQ 300/1250 AB 987 DL a = 0,2 mm
 1250 91,5-93,5 600 700 92,5-94,5 100 119-129
 400 82,5-88,5

186 PS / 2500 min - RQ 300/1250 AB 929 L
 1250 94,5-96,5 600 400 max. 84,5 100 119-129

176 PS / 2500 min - RQ 300/1250 ABV 12946 D a = 0,3 mm
 1250 85,5-87,5 600 1000 83,5-86,5 100 119-129
 700 86,5-89,5

168 PS / 2500 min - RQ 300/1250 ABV 12946 D a = 0,3 mm
 1250 75,7-77,5 600 1000 73,5-76,5 100 119-129
 700 71,5-74,5

176 PS / 2300 min - RQ 300/1150 ABV 12242 D a = 0,35 mm
 1150 83,5-85,5 600 1000 81,5-84,5 100 119-129
 700 85,5-88,5

160 PS / 2150 min - RQ 300/1075 ABV 12243 D
 1075 82,5-84,5 600 1000 80,5-83,5 100 119-129
 700 83,5-86,5

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation		Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3		4	5	6	7	8	
1. <u>141 kW/192 PS / 2650/min</u> - RQV 300-1325 AB974L, 300-950/1325 AB975L									
1325	91,5-93,5	1365-1375*		400	max. 84,5	100		119-129	
2. <u>141 kW/192 PS / 2500/min</u> - RQV 300-1250 AB13392D, 300-800/1250 ABV13776D									
1250	91,5-93,5	1290-1300*		1000	91,0-94,0	100		119-129	a = 0,5mm
				700	91,5-94,5				770=4,5 (+ 13776D)
3. <u>137 kW/186 PS / 1500/min</u> - RQV 300-1250 ABV12248									
1250	90,5-92,5	1290-1300*		400	max. 84,5	100		119-129	
4. <u>130 kW/176 PS / 2500/min</u> - RQV 300-1250 AB983DL (V13122D) a = 0,5 mm									
1250	85,5-87,5	1290-1300*		1000	83,5-86,5	100		119-129	
				400	78,5-82,5				
5. <u>107 kW/145 PS / 2400/min</u> - RQV 300-1200 ABV 12259D a =									
1250	71,5-73,5	1240-1250*		1000	68,0-71,0	100		119-129	
				700	67,0-70,0				
6. <u>124 kW/168 PS / 2300/min</u> - RQV 300/800-1150 AB1021L (V13155)									
1150	84,5-86,5	1190-1200*				100		119-129	
7. <u>124 kW/168 PS / 2300/min</u> - RQV 300-1150 AB999L (V13274)									
1150	85,5-87,5	1190-1200*				100		119-129	
						1196		17-20	
8. <u>101 kW/137 PS / 1800/min</u> - RQV 300-900 ABV13156									
900	79,5-81,5	940-950*		400	max.82,5	100		119-129	
9. <u>101 kW/137 PS / 1800/min</u> - RQV 900 ABV 13273									
900	80,5-82,5	910		936	17 - 20	100		119-129	
10. <u>90 kW/116 PS / 1500/min</u> - RQV 300/525-750 AB 1009L (V13157)									
750	78,5-80,5	790-800*		400	max. 76,5	100		119-129	

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 141 kW/192 PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L
 1325 91,5-93,5 1365-1375* 400 max.82,5 100 119-129

2. 141 kW/192 PS / 2650/min - EP/RSV 300-1325 A 8 B 1002 DL
 1325 91,5-93,5 1365-1375* 400 max. 82,5 100 119-129

4.

5.

F 6 L 413 FW

6.1 121 kW/165 PS / 2500/min - RQV 300-1250 ABV 13925 D a = 0,5 mm

2 108 kW/147 PS / 2500/min

1 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129

2 1250 74,5-76,5 1290-1300* 800 71,0-74,0 100 119-129

7.1 115 kW/156 PS / 2300/min - RQV 300-1150 ABV 13926 D a = 0,5 mm

2 96 kW/131 PS / 2300/min

1 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129

2 1150 68,5-70,5 1190-1200* 800 68,0-71,0 100 119-129

8.1 101 kW/137 PS / 2150/min - RQV 300-1075 ABV 13927 D a = 0,5 mm

2 91 kW/124 PS / 2150/min

1 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129

2 1075 67,5-69,5 1115-1125* 800 68,0-71,0 100 119-129

9.

10.

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1.	188 kW/256 PS / 2650/min	1325	91,5-93,5	600	-	RQ 300/1325 AB 929 L (V 11708)	400 max. 84,5	100	119-129	
2.	188 kW/256 PS / 2500/min	1250	91,5-93,5	600	-	RQ 300/1250 AB 987 DL (V 13391 D)	700 90,5-93,5	100	119-129	a = 0,2 mm
							400 82,5-88,5			
3.	183 kW/248 PS / 2500/min	1250	91,5-93,5	600	-	RQ 300/1250 AB 929 L (V 12241)	400 max.84,5	100	119-129	
4.	173 kW/235 PS / 2500/min	1250	85,5-87,5	600	-	RQ 300/1250 ABV 12946 D	700 83,5-86,5	100	119-129	a = 0,3 mm
							400 max. 84,5			
5.	173 kW/235 PS / 2300/min	1150	87,5-89,5	600	-	RQ 300/1150 ABV 12242 D	1000 88,0-91,0	100	119-129	a = 0,35mm
							700 88,0-91,0			
							400 max. 84,5			
6.	157 kW/213 / 2150/min	1075	82,5-84,5	600	-	RQ 300/1075 ABV 12243 D	1000 81,5-84,5	100	119-129	a = 0,3 mm
							700 84,5-87,5			
							400 max. 84,5			

7.

8.

9.

10.

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor



engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. 188kW/256 PS / 2650/min		-	RQV 300-1325 AB 974 L (12247), 976 L (12630) AB 1014L (13605), 13629				+ 1014 770=4,5 mmRW	
1325	91,5-93,5	1365-1375*	400	max.84,5	100	119-129		
2. 188kW/256 PS / 2500/min		-	RQV 300-1250 AB 990 DL (V 13392 D), 14020 D RQV 300- 800/1250 ABV 13776 D				a = 0,5 mm	
1250	91,5-93,5	1290-1300*	1000	91,0-94,0	100	119-129		
			700	91,5-94,5				
3. 183kW/248 PS / 2500/min		-	RQV 300-1250 AB 974 L (V 12248)					
1250	90,5-92,5	1290-1300*	400	max.84,5	100	119-129		
4. 173kW/235 PS / 2500/min		-	RQV 300-1250 AV 983 DL (V13122 D)				a = 0,5 mm	
1150	85,5-86,5	1290-1300*	1000	83,5-86,5	100	119-129		
			700	86,5-89,5				
5. 173kW/235 PS / 2300/min		-	RQV 300-1150 ABV 13777 D				a = 0,5 mm	
1150	84,5-86,5	1190-1200*	1000	82,5-85,5	100	119-129		
			700	86,5-89,5				
6. 165kW/224 PS / 2300/min		-	RQV 300/800-1150 AB 1021 L (13155)					
1150	84,5-86,5	1190-1200*	400	max.84,5	100	119-129		
7. 165kW/225 PS / 2300/min		-	RQV 1150 AB 999 L (V13274)					
1150	85,5-87,5	1160			100	119-129		
					1196	17 - 20		
8. 165kW/225 PS / 2200/min		-	RQV 300-800/1100 AB 973 DL (V 13230 D)				a = 0,7 mm	
1100	85,5-87,5	1140-1150*	1000	84,0-87,0	100	119-129	770=4,5 mmRW	
			700	90,0-93,0				
9. 132kW/180 PS / 2150/min		-	RQB 300-1075 ABV 13944 D				a = 1,2	
1075	71,5-73,5	1115-1125*	1050	70,0-73,0	100	119-129		
			800	83,0-86,0				
10. 134kW/182 PS / 1800/min		-	RQV 300/650-900 ABV 13156					
900	79,8-81,5	910	400	max.83,5	100	119-129		

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

11. <u>134kW/182 PS / 1800/min</u> - RQV 900 ABV 13273								
900	80,5-82,5	910				100		119-129
						936		17- 20

12. <u>114kW/155 PS / 1500/min</u> - RQV 300/525-750 AB 1009 L (V 13157)								
750	78,5-80,5	760	400	max. 82,5		100		119-129

13. <u>114kW/155 PS / 1500/min</u> - RQV 750 ABV 12507								
750	78,5-80,5	760				100		119-129

Testoil-ISO 4113

F 8 L 413 FW

16. 1. <u>162kW/220 PS / 2500/min</u> - RQV 300-1250 ABV 13925 D a = 0,5mm								
2. <u>144kW/195 PS / 2500/min</u>								
1. 1250	79,5-81,5		1290-1300*	800	78,0-81,0	100		119-129
2. 1250	74,5-76,5		1290-1300*	800	71,0-74,0	100		119-129

17. 1. <u>153kW/208 PS /2300/min</u> - RQV 300-1150 ABV 13926 D a = 0,5mm								
2. <u>129kW/175 PS/2300/min</u>								
1. 1150	78,5-80,5		1190-1200*	800	78,0-81,0	100		119-129
2. 1150	68,5-70,5		1190-1200*	800	68,0-71,0	100		119-129

18. 1. <u>135kW/184 PS / 2150/min</u> - RQV 300-1075 ABV 13927 D a = 0,5mm								
2. <u>121kW/164 PS / 2150/min</u>								
1. 1075	73,5-75,5		1115-1125*	800	74,0-77,0	100		119-129
2. 1075	67,5-69,5		1115-1125*	800	68,0-71,0	100		119-129

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 188 kW/265 PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L
 1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 188 kW/256 PS / 2500/min - EP/RSV 300-1325 A 8 B 1002 DL
 1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

3. 147 kW/200 PS / 1900/min - EP/RSV 300-1000 A 7 B 1002 DL
 A 7 C 1002 DL
 950 79,5-81,5 990-1000* 700 80,5-83,5 100 119-129
 400 max. 84,5

4.

5.

6.

7.

8.

9.

10.

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. <u>236kW/320 PS / 2650/min</u>		RQ 300/1325 (V11709)					
1325	91,5-93,5	600	400	max. 84,5	100	119-129	
2. <u>236kW/320 PS / 2500/min</u>		- RQ 300/1250 AB984DL				a = 0,2mm	
1250	91,5-93,5	600	1000	91,0-94,0	100	110-129	
			700	91,5-94,5			
3. <u>228kW/310 PS / 2500/min</u>		- RQ 300/1250 ABV 12244					
1250	89,5-91,5	600	400	max.84,5	100	119-129	
4. <u>217kW/295 PS / 2500/min</u>		- RQ 300/1250 AB 986DL (V13159D)				a = 0,3mm	
1250	86,5-88,5	600	1000	84,5-87,5	100	119-129	
			700	87,5-90,5			
5. <u>216kW/293 PS / 2300/min</u>		- RQ 300/1150 ABV 12245D				a = 0,35mm	
1150	84,5-86,5	600	1000	82,5-85,5	100	119-129	
			700	86,5-89,5			
6. <u>197kW/267 PS / 2150/min</u>		- RQ 300/1075 ABV 12246D				a = 0,35mm	
1075	83,5-85,5	600	1000	81,5-84,5	100	119-129	
			700	84,5-87,5			

7.

8.

9.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 236kW/320 PS / 2650/min - RQV 300-1325 AB898L (V12249)
300- 800/1325 ABV12271

1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 228kW/310 PS / 2550/min - RQV 300-1275 ABV13664D

a = 0,5mm

1275 90,5-92,5 1315-1325* 1000 90,5-92,5 100 119-129
700 91,0-94,0

3. 236kW/320 PS / 2500/min - RQV 300-1250 AB1026DL

a = 0,5mm

1250 91,5-93,5 1290-1300* 1000 91,0-94,0 100 119-129
700 90,0-93,0

4. 228kW/310 PS / 2500/min - RQV 300-1250 AB898L (V11962)

1250 90,5-92,5 1290-1300* 400 max.84,5 100 119-129

5. 217kW/295 PS / 2500/min - RQV 300-1250 ABV12118D

a = 0,5mm

1250 86,5-88,5 1290-1300* 1000 84,5-87,5 100 119-129
700 87,5-90,5

6. 193kW/262 PS / 2500/min - RQV 300/850-1250 ABV 12294

1250 79,5-81,5 1290-1300* 400 max. 82,5 100 119-129

7. 216kW/293 PS / 2300/min - RQV 300-1150 AB988DL (V13119D)

a = 0,5mm

1150 84,5-86,5 1190-1200* 100 119-129
700 83,0-86,0
400 75,0-79,0

8. 216kW/293 / 2300/min - RQV 300/800-1150 AB1016L (V12264)

1150 84,5-86,5 1190-1200* 400 max.82,5 100 119-129

9. 206kW/280 PS / 2300/min - RQV 300-1150 AB898L

1150 79,5-81,5 1190-1200* 400 max. 82,5 100 119-129

10. 197kW/267 PS / 2150/min - RQV 300-1075 AB988DL (V12130D)

a = 0,5mm

1075 83,5-85,5 1115-1125* 1000 81,5-84,5 100 119-129
700 84,5-87,5 * 1 mm less control rod travel than col 2
400 max. 82,5

Checking values in brackets

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
11. <u>197kW/267PS / 2150/min</u>			- RQV 300/750-1075 AB931L		(V12575)			
1075	83,5-85,5	1115-1125*	400	max. 82,5	100		119-129	
12. <u>184kW/250PS / 2000/min</u>			- RQV 300-1000 AB1006DL		(V13121D)		a=0,5mm	
1000	80,5-82,5	1040-1050*	700	83,5-86,5	100		119-129	
13. <u>184kW/250PS / 2000/min</u>			- RQV 300-1000 ABV13550					
1000	80,5-82,5	1040-1050*	400	max. 82,5	100		119-129	
14. <u>168kW/228PS / 1800/min</u>			- RQV 300/650-900 AB1020L		(V12263)			
900	80,5-82,5	940-950*	400	max. 82,5	100		119-129	
15. <u>142kW/193PS / 1500/min</u>			- RQV 300/525-750 AB998L		(V12262)			
750	78,5-80,5	790-800*	400	max. 82,5	100		119-129	

F 10 L 413 FW

16.1 <u>202kW/275PS/2500/min</u>			- RQV 300-1250 ABV13928D				a=0,5mm	
2 <u>180kW/245PS/2500/min</u>								
1.	1250	79,5-81,5	1290-1300*	800	78,0-81,0	100	119-129	
2.	1250	74,5-76,5	1290-1300*	800	71,0-74,0	100	119-129	
17.1 <u>192kW/261PS/2300/min</u>			- RQV 300-1150 ABV13929D				a=0,5mm	
2 <u>161kW/219PS/2300/min</u>								
1.	1150	78,5-80,5	1190-1200*	800	78,0-81,0	100	119-129	
2.	1150	68,5-70,5	1190-1200*	800	68,0-71,0	100	119-129	
18.1 <u>168kW/228PS/2150/min</u>			- RQV 300-1075 ABV13930D				a=0,5mm	
2 <u>161kW/219PS/2150/min</u>								
1.	1075	73,5-75,5	1115-1125*	800	74,0-77,0	100	119-129	
	1075	67,5-69,5	1115-1125*	800	67,0-70,0	100	119-129	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor



engine power Full-load delivery		Rotational-speed limitation Control-rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
Test oil temp 40°C (104°F)	rev/min cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>283kW/384 PS / 2650/min</u> - RQ 300/1325 AB930L (V11709)								
1325	91,5-93,5	600	400	max. 84,5	100	119-129		
2. <u>283kW/384 PS / 2500/min</u> - RQ 300/1250 AB984DL (V13407D) a = 0,2 mm								
1250	91,5-93,5	600	1000	91,0-94,0	100	119-129		
			700	91,5-94,5				
			400	82,5-88,5				
3. <u>274kW/372PS / 2500/min</u> - RQ 300/1250 AB930L (V12244)								
1250	89,5-91,5	600	400	max. 84,5	100	119-129		
4. <u>260kW/353PS / 2500/min</u> - RQ 300/1250 AB986DL (V13159D) a = 0,3 mm								
1250	86,5-88,5	600	1000	84,5-87,5	100	119-129		
			700	87,5-90,5				
			400	max. 82,5				
5. <u>259kW/352PS / 2300/min</u> - RQ 300/1150 ABV 12245D a = 0,35 mm								
1150	84,5-86,5	600	1000	82,5-85,5	100	119-129		
			700	86,5-89,5				
			400	max. 82,5				
6. <u>236kW/320PS / 2150/min</u> - 1000 81,5-84,5 100 119-129								
			700	84,5-87,5				
			400	max. 82,5				

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

- | | | | | | | | | | |
|--------------------------------------|-----------|---------------------------------------|------|-----------|-------------------|---------|--|-------------|--|
| 1. <u>283kW/384 PS / 2650/min</u> | | - RQV 300-1325 AB898L (V12249) | | | | | | | |
| 1325 | 91,5-93,5 | 1365-1375* | 400 | max. 84,5 | 100 | 119-129 | | | |
| 2. <u>283kW/384 PS / 2500/min</u> | | - RQV 300-1250 AB1026DL (V13408D) | | | | | | a = 0,5 mm | |
| 1250 | 91,5-93,5 | 1290-1300 | 1000 | 91,0-94,0 | 100 | 119-129 | | | |
| | | | 700 | 91,5-94,5 | | | | | |
| 3. <u>274kW/372 PS / 2500/min</u> | | - RQV 300-1250 AB898L | | | | | | | |
| 1250 | 89,5-91,5 | 1290-1300* | 400 | max. 84,5 | 100 | 119-129 | | | |
| 4. <u>260kW/353 PS / 2500/min</u> | | - RQV 300-1250 ABV 13118D | | | | | | a = 0,5 mm | |
| 1250 | 86,5-88,5 | 1290-1300* | 1000 | 84,5-87,5 | 100 | 119-129 | | | |
| | | | 700 | 87,5-90,5 | | | | | |
| | | | 400 | max. 82,5 | | | | | |
| 5. <u>1. 246kW/335 PS / 2500/min</u> | | - RQV 300-1250 ABV 13287D | | | | | | a = 0,55 mm | |
| 2. <u>147kW/200 PS / 2500/min</u> | | | | | | | | | |
| 1250 | 82,5-84,5 | 1290-1300* | 1000 | 80,5-83,5 | fuel overquantity | | | | |
| | | | 700 | 84,0-87,0 | 100 | 119-129 | | | |
| 1250 | 50,5-52,5 | | | 1000 | 50,0-53,1 | | | | |
| | | | 700 | 39,0-42,0 | | | | | |
| 6. <u>243kW/330 PS / 2500/min</u> | | - RQV 300-1250 ABV 13621D | | | | | | a = 0,5 mm | |
| 1250 | 78,5-80,5 | 1290-1300* | 1000 | 77,0-80,0 | 100 | 119-129 | | | |
| | | | 700 | 73,0-76,0 | | | | | |
| 7. <u>259kW/352 PS / 2300/min</u> | | - RQV 300-1150 AB898L, 1016L (V12264) | | | | | | | |
| 1150 | 84,5-86,5 | 1190-1200* | 400 | max. 82,5 | 100 | 119-129 | | | |
| 8. <u>259kW/352 PS / 2300/min</u> | | - RQV 300-1150 AB988DL (V13118D) | | | | | | a = 0,5 mm | |
| 1150 | 84,5-86,5 | 1190-1200* | 1000 | 82,5-85,5 | 100 | 119-129 | | | |
| | | | 700 | 86,5-89,5 | | | | | |
| | | | 700 | 86,5-89,5 | | | | | |
| 9. <u>247kW/336/S / 2300/min</u> | | - RQV 300-1150 AB962L | | | | | | | |
| 1150 | 83,5-85,5 | 1190-1200* | 400 | max. 82,5 | 100 | 119-129 | | | |
| 10. <u>236kW/320 PS / 2150/min</u> | | - RQV 300/750-1075 AB931L (V12575) | | | | | | | |
| 1075 | 83,5-85,5 | 1190-1200* | 400 | max. 82,5 | 100 | 119-129 | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

1

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

11. 236kW/320 PS / 2150/min - RQV 300-1075 AB988DL (V13120D) a = 0,5 mm
ABV13162D

1075 83,5-85,5 1115-1125* 1000 81,5-84,5 100 119-129
700 84,5-87,5
400 max. 82,5

12. 199kW/270 PS / 2150/min - RQV 300-1075 ABV13945D a = 1,2 mm

1075 71,5-73,5 1115-1125* 1050 70,5-72,5 100 119-129
800 83,0-86,0

13. 221kW/300 PS / 2000/min - RQV 300-1000 AB1006DL (V13121D) a = 0,5 mm
ABV13163D

1000 80,5-82,5 1040-1050* 700 83,5-86,5 100 119-129

14. 200kW/272 PS / 2000/min - RQV 300-1000 ABV13550

1000 80,5-82,5 1040-1050* 100 119-129

15. 202kW/275 PS / 1800/min - RQV 300-900 ABV13549
300/650-900 ABV12263

900 80,5-82,5 940-950* 100 119-129

16. 171kW/232 PS / 1500/min - RQV 300-750 AB998L (V12262)

750 80,5-82,5 790-800* 400 max. 82,5 100 119-129

F12 L 413 FW

17. 1.-243kW/330 PS / 2500/min - RQV 300-1250 ABV13928 D a = 0,5 mm
2.-216kW/294 PS / 2500/min

1. 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129

2. 1250 74,5-76,5 1290-1300* 800 71,0-74,0

18. 1-230kW/313 PS / 2300/min - RQV 300-1150 ABV13929D a = 0,5 mm
2-193kW/262 PS / 2300/min

1. 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129

2. 1150 68,5-70,5 1190-1200* 800 68,0-71,0

19. 1-202kW/274 PS / 2150/min - RQV 300-1075 ABV13930D a = 0,5 mm
2-183kW/248 PS / 2150/min

1. 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129

2. 1075 67,5-69,5 1115-1125* 800 68,0-71,0

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e

5. Edition

En

PES 5 A 95 D 410 LS 2488 RQV 250-1100 AB 850 DL
Komb.-Nr. 0 400 845 029

supersedes 5.78
company MAN
engine D2565 M/MF
141 kW

1-3-5-4-2 je 72° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5-1,6}
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,2+0,1	11,8-12,0	0,3(0,6)			
250	5,7-5,9	1,1-1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140	14,4-17,6	-	-	-	ca. 13	100	min. 7,3	200	0,7-0,9
ca. 42	10,2	1140-1150					250	5,7-5,9	500	3,5-3,8
	4,0	1165-1195					315-375	= 2,0	800	5,0-5,4
	1300	0 - 1,0					450 max.	1,0	100	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idling switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	117,5-119,5 (115,5-121,5)	1140-1150*	800	116,5-120,5 (114,5-122,5)	100	15,5-16,5 mm RW	1100	11,2+0,1
			500	max. 116,5 (max. 118,5)	250	6,0 mm RW	800	11,2+0,3
							500	11,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K1

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e 3
1. Edition

En

PES 5 A 95 D 410 LS 2488 y RQV 250-1100 AB 850 DL

supersedes
company MAN
engine D 2565
Saviem

Komb.-Nr. 0 400 845 041

1-3-5-4-2 je 72° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,	11,8-12,0	0,3(0,6)			
250	5,7-5,9	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	14,4-17,6	-	-	-	ca. 13	100	min. 7,4	200	0,7-0,9
ca. 42	10,0 4,0 1,5-2,0	1140-1150 1175-1205 0 - 1,0					250	5,7-5,9	500	3,5-3,8
							315-375	2,0	800	5,0-5,4
							450 max.	1,0	1100	7,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	117,5-119,5 (115,5-121,5)	1140-1150*	750	114,5-118,5 (112,5-120,5)	100	13,7-14,3 mm RW	1100	11,0+0,1
			500	111,5-115,5 (109,5-117,5)	250	6,0 mm RW	750	11,3+0,2
							500	11,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

K2

K2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e 2
1. Edition

En

PES 5 A 95 D 410 LS 2488 Z RQV 250-1100 AB 850 DL

supersedes
company MAN
engine D 2565
124 kW (168 PS)

1-3-5-4-2 je 72° ±0,5° (+75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$ mm (from BDC)
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	9,9+0,1	9,5-9,7	0,3(0,6)			
250	5,7-5,9	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140	14,4-17,6	-	-	-	ca. 13	100	7,5-10,2	200	0,7-0,9
	1200	4,0-10,6					200	5,7-8,5	500	3,5-3,8
	1220	0 - 8,0					300	2,5-5,3	800	5,0-5,4
	1300	0 - 1,0					410	0	100	7,7

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	94,5-96,5 (92,5-98,5)	1140-1150*	800	98,5-102,5 (96,5-104,5)	100	15,5-16,5 mm RW	1140	0
			500	95,0-98,0 (93,0-100,0)	250	6,0 mm RW	550	4-0,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c 6

1. Edition

En

PE 10 A 95 D 520/5 LS 2501 RQV 250-1150 AB 1067 R

Komb.-Nr. 0 400 649 213

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes

company MAN

engine D 2530 MTE
294 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,7-1,8 \\ (1,65-1,85) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	12,5-12,7	0,3(0,6)			
250	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min.7,5	200	0,6-1,0
ca. 48	11,0 4,5 1400	1190-1200 1245-1275 0-1,0					250	5,9-6,1	520	3,8-4,0
							325-385 = 2,0		830	5,2-5,5
							450 max.1,0		1150	7,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,5 bar 124,5-126,5 (122,5-128,5)	1190-1200*	LDA 750	0,5 bar 124,5-127,5 (122,5-129,5)	100	170,0-180,0 (167,0-183,0)	1150	12,0+0,1
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)			750	12,4+0,2
							500	12,4+0,2

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K4

D. Adjustment Test for Manifold Pressure Compensator

MAN 16,0 c 6

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure : bar	Gauge pressure = bar	diminution difference mm (1)
PE10A..LS2501 + RQV..AB1067R	0		9,9 - 10,0
		0,20	10,3 - 10,6
		0,25	11,4 - 11,5
		0,50	12,6 - 12,7

Notes

(1) when n

rev/min and gauge pressure -

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 k 1

4. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2525, X, Y RSV 250-1200 A 5 B 2013 DL

supersedes 11.82
company DAF
engine DN825 (X, Y)
DHP/DHTD 825

Note VDT-I-420/115

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)
2,00-2,10 RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,6+0,1	10,7 - 10,9	0,3(0,6)			
250	6,0-6,2	0,8 - 1,0	0,3(0,5)			

Port closing difference between control rod travel 9 mm and max. = 3 - 4° camshaft

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0 4,25	-	-	-	ca. 21	250	5,6	1000	12,6+0,2
							250	6,0-6,2	400	12,6+0,2
							595-655 = 2,0		300	12,8+0,4
⑤ ca. 55	1230-1240 = 11,6									
	1330-1360 = 4,0									
	1490 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop			
Test oil temp 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9	
LDA	1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*	LDA	600	0 bar 82,5 - 85,5 (80,5 - 87,5)	100	121,5-131,5 (118,5-134,5) = 19,5-21,0 mm RW	250	6,1
X	1000	90,5- 92,5	(12,0mmRW)	X	600	77,0 - 80,0				
Y	1000	99,0-101,0	(12,5mmRW)	Y	600	77,0 - 80,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

K6

5.84

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 k 1 - 2 .

Test at n = rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2525 + 2013 DL	0,70	0,30 0,26 0	12,6 - 12,7 12,3 - 12,4 12,0 - 12,2 11,6 - 11,7

Notes* -
 (1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K7

K7
En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p

9. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 850 DL
Komb.-Nr. 0 400 846 420

supersedes 10.83
company MAN
engine D 2566 M /MF
177 kW /2200 min⁻¹
MAN-Nr. 1-7943

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5-1,6}
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,9 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 7,5	200	0,5-1,2
ca. 42	11,0	1140-1150					250	5,9-6,1	600	3,8-4,1
	4,0	1180-1210					325-385=2,0mm		1140	8,3
	1300	0 - 1,0					450 max. 1,0			

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5) = 14,0-14,6 mm RW	-	-
			500	107,5-113,5 (105,0-116,0)	250	6,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K8

K8

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 1
6. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 Z RQV 250-1100 AB 1038 DL (1) superseded 0.83
 .. LS 2542 RQ 250/1100 AB 1049 DL (2) company MAN
 RQ 250/1050 AB 965 DL (3) engine D2566
 Komb.-Nr. 0 400 846 425 (1) MAN-Nr. 1-7960 (1) MSFV-162 kW/2200 min/1
 0 400 846 427 (2) MAN-Nr. 1-7946 (2) MFOR-162 kW/2200 min/1
 0 400 846 418 (3) MAN-Nr. 1-7941 (3) MF -172 kW/2200 min/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC) Zyl. 6
 (1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	11,3 - 11,5	0,3(0,6)	12,0-12,1	12,9 - 13,1	n 1050
250	5,9-6,1	0,8 - 1,5	0,3(0,5)	6,5-6,7	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
max.	1140	14,4-17,6		-	-	-		ca.13	100 250 320-380 450	min.7,5 5,9-6,1 =2,0 0-1		200 700 1140	0,5-1,2 4,3-4,6 8,3
ca.42	10,3 4,0 1300	1140-1150 1175-1205 0 - 1,0	②a					③a					

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9 +0,1
1100	112,5-114,5 (110,5-116,5)	1140-1150*		700	102,5-105,5 (100,5-107,5)	100	124,0-134,0	1100 700	11,3 11,7
				500	max. 106,5 (108,5)	250	6,0 mm RW	500	11,7
						100-170 (80-190)			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(2) MAN 11,1 D 1

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3				
				4,0	1185-1215			250	5,9-6,1	845	11,2-11,5				
								360-400	=2,0	750	11,4-11,6				
										600	11,6-11,7				

Torque control travel on flyweight assembly dimension a **0,3** mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	
(2) 1100	112,5 - 114,5 (110,5 - 116,5)			700	102,5 - 105,5 (100,5 - 107,5)	100	125,0 - 135,0 (122,0 - 138,0) = 15,0 - 16,0 mm RW
				500	max. 106,5 (max. 108,5)	250	6,0 mm RW

Checking values in brackets

B. Governor Settings

(3)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	11,0	1095-1110	250	5,6	100	min. 8,1	-	-				
				4,0	1145-1170			250	6,5-6,7						
								375-415	=2,0						
1250	0 - 1							450	0 - 1						

Torque control travel on flyweight assembly dimension a **0** mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	
(3) 1050	127,5 - 129,5 (125,5 - 131,5)			500	max. 113,5 (115,5)	100	124,0 - 134,0 6,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 9

5. Edition

PES 6 A 95 D 410 LS 2542
Kofm.-Nr. 0 400 846 471

RQV 250-1100 AB 1134 L

supersede 10.83

company MAN

engine D 2566 MF/Fendt
162 kW/2200 min⁻¹
MAN-Nr. 2-7196

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$ mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm
(1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,5+0,1	12,6-12,8	0,35(0,6)			
250	7,5-7,7	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	200	0,7-0,9
ca. 4δ	10,2 4,0 1300	1140-1150 1175-1205 0-1,0					250 440	7,5-7,7 max. 1,0	500 800 100	3,7-4,1 5,4-5,7 8,1

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	126,0-128,0 (124,0-130,0)	1140-1150*	1100 500	111,5-115,5 (109,5-117,5) 113,5-117,5 (111,5-119,5)	100	125,0-135,0 (122,0-138,0) = 15,4-16,0 mm RW	1100 500 940 1025	11,2+0,1 12,5+0,1 12,1+0,1 11,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K11

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 20

2. Edition

En

PES 6 A 95 U 410 LS 2542 RQV 250-1100 AB 1177 DL
Komö.-Nr. 0 400 846 516

superseded 0.83
company: MAN
engine D 2566 M/NF
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,35(0,6)			
250	5,3-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1115	15,2-17,8	-	-	-	ca. 13	100	min. 8,2	200	0,7-0,9
ca. 47	11,0 4,0 1300	1140-1150 1180-1210 0-1,0					250	6,7-6,9	500	3,4-3,8
							335-395	= 2,0	800	4,9-5,4
									100	7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	107,5-113,5 (105,0-116,0)		= 14,7-15,3 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil ISO 4113

K12

K12

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 i 3
2. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/11(UAB 1137-3 L

supersedes 9.83

Komb.-Nr. 0 400 845 065

company: MAN

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

engine D 2565 MF
141 kW/2200 min⁻¹
MAN-Nr. 2-7435

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,5-1,6}{(1,45-1,65)}$ mm (from BDC) Zyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	11,2-11,3	0,3(0,6)			
250	6,9-7,1	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,0	1145-1160	250	6,0	100	min. 7,5	1100	11,0-11,1
				4,0	1185-1215			250	5,9-6,1	600	11,8-11,9
								355	395=2,0	790	11,6-11,8
										955	11,1-11,4

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	111,5-112,5 (109,5-114,5)	-	750	106,5-110,5 (104,5-112,5)	100	150,0-160,0 (147,0-163,0)
			500	max. 111,5 (max. 113,5)		=15,7-16,3 mm RW
					250	6,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o 2
2. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 1178 L

supersedes 9.83

Komb.-Nr. 0 400 845 076

company: MAN

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

engine D 2565 ME
141 kW/2200 min⁻¹
MAN-Nr. 2-7041

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
(1.45-1.65) mm (from BDC) 7yl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1125	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	150	0,4-0,7
ca. 48	10,0	1140-1150					250	5,9-6,1	550	4,0-4,4
	4,0	1170-1200							900	6,0-6,5
	1300	0 - 1,0							1200	10,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	110,5-112,5 (108,5-114,5)	1140-1150*	-	-	100	146,5-156,6 (143,5-159,6) = 15,6-16,2 mm RW	-	-
					250	6,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

K14

7.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 m
6. Edition

En

PE 6 A 85 D 320 RS 2546 RSV 250-750 A 7 B 2125 R

supersedes 4.83
company DAF
engine DD 575 DF

Komb.-Nr. 0 400 676 168
Values apply to fuel-injection test tubing
1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,1 - 2,3) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,1+0,1	6,0 - 6,2	0,3(0,45)			
250	8,4-8,6	0,8 - 1,4	0,2(0,4)			

Port closing difference between control-rod travel 9 mm and max. 3,0 - 4,0 camshaft

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 16	250	8,5	-	-
	x = 4,5						250	8,4-8,6		
ca. 40	11,1	770-780					260-	320=2,0		
2a	4,0	785-805						**		
	955	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/2 turn.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	60,5 - 62,5 (58,5 - 64,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K15

KAS

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 f 2

2. Edition

En

PE 10 A 90 D 420/5 LS 2567

ROV 250-1250 AB 1182 R

supersedes 9.83

Komb.-Nr. 0 400 649 238

company MAN

engine D 2530 MXF
235 kW/2500 min⁻¹
MAN-Nr. 2-7448

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC) $\gamma_1 = 10$; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,6+0,1	10,2 - 10,3	0,3(0,45)			
250	7,2-7,4	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1210	15,2-17,8	-	-	-	ca. 13	100	min. 8,8	200	0,7-0,9
ca. 49	11,6 4,0 1500	1290-1300 1385-1415 0 - 1,0					250	7,2-7,4	550 1000 1350	3,3-3,7 6,2-6,4 9,5

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	101,5-102,5 (99,5-104,5)	1290-1300*	800 500	95,5-98,5 (93,5-100,5) max. 89,0 (max. 91,0)	100 250	135,0-145,0 (132,0-148,0) =18,3-18,7 mm RW 7,0 mm RW	1250 500 955 1120	12,6+0,1 13,3+0,1 13,1+0,2 12,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K17

K17

Test: ISO 15722

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u
7. Edition

7.

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1065 DL
 superseded 10.81
 company Daimler-Benz
 OM 352
 engine 96 kW (130 PS)

Set the stop screw to control-rod travel 3 - 3,5 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,25-2,35} (2,20-2,40) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,1+0,	5,9 - 6,0	0,3 (0,45)			
300	8,4-8,6	1,0 - 1,6	0,2(0,4)			
500	11,3+0,	C, Sp.4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca.21	100	min.10,0	300	1,1
	1630	0 - 1,0					300	8,4-8,6	670	3,9-4,1
							550-610	= 2,0	450	8,0
ca. 65	9,1	1440-1450								
	4,0	1530-1560								

Torque control travel s = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	59,5 - 60,5 (57,5 - 62,5)	1440-1450*	500	51,5 - 54,5 (49,5 - 56,5)	100	72,25-82,25 bei 14,4 - 15,0 mm RW	1400	10,1
							1000	10,6
							630	11,1
							500	11,3
						100-220 (80-240)		

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

K18



Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

K.18

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 7

1. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1077 L
Komb.-Nr. 0 400 846 445

supersedes
company Daimler-Benz
OM 352
engine 96 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,25-2,35 \\ (2,20-2,40) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,6+0,1	6,2-6,3	0,3(0,45)			
300	5,5-5,7	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 12	100 300	min.7,1 5,5-5,7	250 630	0,8-1,0 3,2-3,5
ca. 60	9,7 4,0 1700	1440-1450 1525-1555 0-1,0				395-465	525-585=2,0 700 max.1,0		1020 1400	5,8-6,0 8,3

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	61,5-62,5 (59,5-64,5)	1440-1450*	1000 500	59,5-61,5 (57,5-63,5) 53,0-56,0 (51,0-58,0)	100	12,2-12,8 mm RW	1400 900 725 500	10,6+0, 10,6+0, 10,8+0, 10,9+0,

Checking values in brackets

* 1 mm less control rod travel than col 2

K19

5.84

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 n 10

2. Edition

En

PES 4 A 90 D 410 RS 2570
Komb.-Nr. 0 400 874 237

RSV 350-1300 A 2 B 1126-2 L

superseded by 6.83
Daimler-Benz
company OM 314
engine 55 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,25-2,35 \\ (2,20-2,40) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	10,9+0,1	6,0-6,1	0,3(0,45)			
350	8,9-9,1	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-		350	8,5	1300	10,9-11,0
	x = 4,0						100	min.19,5	500	11,6-11,8
							350	8,9-9,1	700	11,2-11,5
ca. 46	9,9	1340-1350					595-655	=2,0		
2a	4,0	1370-1400								
	1550	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9
1	2							
1300	60,0-61,0 (58,0-63,0)	1340-1350*	500	48,0-52,0 (45,5-54,5)	100	78,0-88,0 (75,0-91,0)	350	8,5 **

Checking values in brackets

* 1 mm less control rod travel than col 2

** Adjusting the idle-speed auxiliary spring

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

TESTBENCH 4113

K20

K20

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PI 6 A 95 D 410 RS 2575 RSV 250-750 A7G2124L
Komb.-Nr. 0 400 676 166

superseded by 3,83
DAF
company
engine DU 825
Generator

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,1	9,9 - 10,1	0,4(0,7)			
250	6,0-6,2	0,7 - 1,3	0,2(0,4)			
Port closing difference between control rod travel 9 mm and max. = 3 - 4° camshaft						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	-	-
	x =	4,25					250	**		
ca. 40	11,5	770-780					260-320 = 2,0	mm		
⑤	4,0	785-805								
	955	0,3-1,7								

** Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
	750	98,5 - 100,5 (96,5 - 102,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 n
4. Edition

En

PE 6 A 90 D 320 RS 2577

RSV 250-750 A 7 B 2125 R

supersedes 3.83
DAF
company DT 615
engine

Komb.-Nr. 0 400 676 167

Specifications apply to test tubing 1 680 750 015 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RW = 9,0 mm

Port closing at prestroke $2,20-2,30$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,0+0,1	7,4 - 7,6	0,4 (0,55)			
250	5,9-6,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-1,0				ca. 15	250	6,0	-	-
	X = 5,0							**		
ca. 40	10,0	770-780					260-320	= 2,0		
2a	4,0	785-805								
	955	0,3-1,7								

The numbers denote the sequence of the tests. Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop		
Test oil temp 40° C (104 F)	rev/min	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9
	750	74,0-76,0 (72,0-78,0)	160-770*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

Port closing difference between control-rod travel 9 mm
and max. = 2.5 - 3.5° camshaft.

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

K22

K22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 GAN 9,7 a

2. Edition

En

PES 6 A 95 D 420 LS 2580

RSV 200-750 A 7 B 2071 R
A 7 C 2071 R

supersedes 4.81

company Ganz-Mavag
engine D 2156 HM6

Komb.-Nr. 0 400 876 282

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
720	10,3±0,1	10,1-10,3	0,3(0,6)			
200	5,9-6,1	1,1 -1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testbenches 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca,12	200	5,4-5,6	720	10,3-10,4
	X =	3,0					100	min.19,0	375	10,3-10,5
ca.40	9,3	760-770					200	5,9-6,1	250	11,5-12,1
	4,0	765-795					295-355	2,0		
2a	925	0,3-1,7					400	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104 F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	720	100,5-102,5 (98,5-104,5)	760-770*	-	-	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K23

1423

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 15,0 d 2

3. Edition

En

PE10A95D 520/5 LS 2604

RQV 250-1150AB1183 R

supersedes 5.84

Komb.-Nr. 0 400 649 239

company MAN

engine D 2840 MF

268 kW/2300 min⁻¹

MAN-Nr. 2-7449

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

7230050 4113

A. Fuel Injection Pump Settings

port closing at prestroke (1,65-1,85) mm (from BDC) Zyl. 10; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1150	12,0+0,	12,5-12,7	0,35(0,6)			
250	6,9-7,	1,1 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 8,5	200	0,5-0,7
ca. 62	11,0 4,0 1400	1190-1200 1280-1310 0 - 1,0					250 400-460	6,9-7,1 =2,0	550 1000 250	4,5-4,7 6,5-6,9 8,6-8,9

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	124,5-126,5 (122,5-128,5)	1190-1200*	650 500	113,5-117,5 (111,5-119,5 max. 118,5 (max. 120,5)	100	14,9-15,5 mm RW	1150 500 1000 1070	12,0+0,1 12,5+0,1 12,4+0,2 12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K24

K24

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 1 g 3

8. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 AOB 2168 L
AOC 2168 L

supersedes 4.84
KHD
company BF 4 L 913
engine 66 kW/2300 min⁻¹
Symbol S 29 = tractor DX 92 (1)
60 kW/2300 min⁻¹
Symbol S 28 = tractor DX 86 (2)
BF 4 L 913 T

Komb.-Nr. 0 400 864 054

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1110	12,3+0,1	8,0-8,1	0,3(0,45)			
325	7,7-7,9	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.29	325	7,3	1110	12,3-12,4
ca.53	x= 4,0						100	min.19,5	500	13,1-13,2
	11,3	1155-1165					325	7,7-7,9	970	12,5-12,7
2a	4,0	1300-1330					670-730=2,0			
	1465	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
(1) 1110	80,0-81,0 (78,0-83,0)	1155-1165*	700	79,5-81,5 (77,0-84,0)	100	100,0-110,0 (97,0-113,0)		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

TESTED

L1

L1

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0.3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x = 4,0						100	min.19,0		
ca. 56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
②a	4,0	1325-1355					720-780	= 2,0		
	1475	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5	6	7	8	9	9	
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)		100	108,5-118,5	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5	6	7	8	9	9	

Checking values in brackets

* 1 mm less control rod travel than col 2

En

L2

L2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 13,8 a

1. Edition

En

PE 12 A 90 D 521 RS 2648 RQV 325-1500 AB 1164 R

Komb.-Nr. 0 400 650 002

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes -

 company: Baudouin
 engine: DF 12 AN, S
 308 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2, 15-2, 25}
 (2, 10-2, 30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,6-9,7	6,2-6,3	0,3(0,45)			
325	6,0-6,2	1,1-1,7	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 13	100	min. 7,5	300	0,9-1,0
ca. 46	8,6 4,0 1700	1540-1550 1595-1625 0-1,0					325	6,0-6,2	700	3,1-3,2
							355-415	=2,0	1100	5,1-5,2
							500	max. 1,0	1500	8,4

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2		Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	61,5-62,5 (59,5-64,5)	1540-1550*	-	-	100	113,0-123,0 (110,0-126,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

BOSCH

 Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L3

L3

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a

3. Edition

En

PES 4 A 9; D 320 RS 2654 RSV 325-1050 A 2 B 2178 R
A 2 C 2178 R

Komb.-Nr. 0 400 874 236

superseded by 6.83
company Valmet
engine 411 DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1050	9,4-9,5	7,7-7,9	0,35(0,6)			
325	4,9-5,1	1,2-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.25	325	4,5	1050	9,4-9,5
	x = 5,0						100	min.19,5	500	10,4-10,5
							325	4,9-5,1	840	9,9-10,1
ca.47	8,4	1090-1100					405-465	=2,0		
2a	4,0	1140-1170								
	1305	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1050	77,0-79,0 (75,0-81,0)	1090-1100*	500	76,0-79,0 (73,5-81,5)	100	185,0-195,0 (182,0-198,0)	325	5,0	
			750	82,5-84,5 (80,0-87,0)		=19,5-21,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

TEST: 01-80 4113

L4

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

L4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a

4. Edition

PES 3 A 95 D 320 RS 2655 RSV 325-1150 A 2 B 2178-1 R
A 2 C 2178-1 R

superseded by 6.83
company Valmet
engine 311 DS 6

Komb.-Nr. 0 400 873 032

1-2-3 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
 $(2,45-2,65)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1150	9,4-9,5	7,8-8,0	0,35(0,6)			
325	4,9-5,1	1,0-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca.24	325	4,5	1150	9,4-9,5
	x= 5,0						100	min.19,5	500	11,1-11,2
							325	4,9-5,1	915	10,2-10,4
							405-465	=2,0		
ca.50	8,4	1090-1200								
2a	4,0	1240-1270								
	1405	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	78,0-80,0 (76,0-82,0)	1190-1200*	500	86,0-88,0 (83,5-90,5)	100	185,0-195,0 =19,5-21,0 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D 7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.84

L5

L5

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 f 1

1. Edition

PES 6 A 80 D 410 RS 2663-1 RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 531

supersedes

companion

engine 8060.24.662

96 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	12,5+0,1	7,0-7,1	0,25(0,35)			
300	5,9-6,1	1,1-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca. 10	100	min. 9,0	250	0,3-0,6
ca. 61	11,5 4,0	1390-1400 1520-1550				420-530	300 920	5,9-6,1 max. 1,0	550 1000 1550	3,0-3,4 5,5-5,8 10,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1350	0,7 bar 69,5-70,5 (68,0-72,0)	1390-1400*	LDA 800	0,7 bar 63,0-65,0 (61,0-67,0)	100	110,0-130,0 (107,0-133,0) =15,7-16,3 mm RW	-	-
			LDA 500	0 bar 40,0-42,0 (38,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

 Geschäftsbereich KM, Kundendienst, Kfz-Ausstattung
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L6

D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 f 1

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure : bar	Gauge pressure = bar	mm (1)	
PES6A..RS2663-1 + RQV..AB1175L	0,70		12,5 - 12,6	
		0,26	12,0 - 12,1	
		0,21	11,0 - 11,2	
		0	10,7 - 10,8	

Notes

(1) when n

rev/min and gauge pressure =

bar (: maximum full-load control rod travel)

L7

L7
En

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 L

2. Edition

En

Test ISO 4113

PES 4 M 55 C 320 RS 152 1
RSF375/2300 M 55

Komb.Nr. 0 400 074 965/ Sales model 0 400 074 964

1- 3- 4 - 2
0-90-180-270

superseded by 4.84
company Daimler-Benz
engine OM 601
53 kW
Europa

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC) Control rod travel
(1,95-2,15) RW 20,0-22,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	12,1+0,1	3,1-3,2	0,25(0,3)			
375	6,4-6,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in []

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	min. 12,5	250	50	11,3-11,5	2200		100	min. 20,6
	6,4-6,6	375		8,8-9,2	2500		1800	11,8-12,0
	**	400		-			1000	12,1-12,2
	-			0-1,0	2950			
	2,5	630-730						

C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery		Full load speed regulation	Variations in fuel delivery		Starting fuel delivery idle		Difference
Test oil temp 40°C (104°F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500* 8,8-9,2	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0
			1000	31,0-32,0 (30,0-33,0)	375	5,0-6,0 (4,5-9,0)	1,0
					2500	22,0-26,0 (21,0-27,0)	2,5 siehe (1,5) (3,0) Pkt. 8 a

Checking values in brackets

Caution: Control rod travel than in Column 2

L8

L9

1. ** Set idle-auxiliary spring at $n = 400 \text{ min}^{-1}$ so that control-rod travel is extended by 0.1 - 0.2 mm.
2. Setting the idle control-lever position:
At 1000 min^{-1} , control-rod travel 1.9 - 2.0 mm.
3. Testing the idle-auxiliary spring cutoff
Control-lever position 46° . After switch-over point (from starting cam) up to 1000 min^{-1} no change of control-rod travel. Control-lever position 30° . Engine-speed range $500\text{-}700 \text{ min}^{-1}$, control-rod travel 9.7 mm.
4. Testing the pneumatic shutoff box
Control lever at idle stop.
At $n = 375 \text{ min}^{-1}$ and $p_u = 450 \text{ mbar}$ (vacuum) (338 mm Hg) control rod must move briskly to control-rod travel = 0 mm.
5. Overflow valve 1 469 990 351
6. * Start-of-delivery offset (difference) between largest/smallest value 1° cam angle.
7. Set idle at PLA box. Loosen lock nut.
8. Setting the pneumatic idle increase (PLA):
At 0.4 bar vacuum, $n = 425 \text{ min}^{-1}$, control-rod travel 8.0 - 9.6 mm (11-19 ccm/1000 lifts).
9. Leak test (vacuum test) on PLA box
Apply 0.8 bar vacuum to PLA box through three-way valve and pressure gauge. By means of three-way valve cut off vacuum supply to PLA and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. FBG setting
FBG setting and blocking in accordance with start-of-delivery average of all cylinders, 19.5 ± 0.2 (0.3) degree cam angle after cyl. 1.

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 M 55 C 320 RS 152-1
RSF 375/2250 M 55-1

Komb.Nr. 0 400 074 960 Sales model 0 400 074 959

1- 3- 4 - 2
0-90-180-270

supersedes 4.84
company Daimler-Benz
engine OM 601
53 kW
Schweden

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC)
(1,95-2,15) RW 20,0-22,0 mm Control rod travel

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	12,1+0,1	3,1-3,2	0,25(0,3)			
375	6,4-6,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in []

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
13-17	① min. 12,5	250	50	⑦ 11,3-11,5	2200		⑫ 100	min. 20,6
	② 6,4-6,6	375		⑧ 8,8-9,2	2500		⑬ 1800	11,8-12,0
	③ **	400		⑨ -			⑭ 1000	12,1-12,2
	④ -			⑩ 0-1,0	2950			
	⑤ 2,5	630-730		⑪			⑥ Switching point	

C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery ⑰		Full-load speed regulation ⑱a	Variations in fuel delivery ⑰		Starting fuel delivery idle ⑱b		Difference
Test oil temp 40°C (104 F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500* 8,8-9,2	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0 ⑲a
					375	5,0-6,0 (4,5-9,0)	1,0 (1,5) ⑲b
			1000	31,0-32,0 (30,0-33,0)	2500	22,0-26,0 (21,0-27,0)	2,5 (3,0) siehe Pkt. 8 a ⑲c

Checking values in brackets

ca. 1 mm less control rod travel than in Column 2
ca. 2,4 XXXX

Testbench 4110

1. ** Set idle-auxiliary spring at $n = 400 \text{ min}^{-1}$ so that control-rod travel is extended by 0.1 - 0.2 mm.
2. Setting the idle control-lever position:
At 1000 min^{-1} , control-rod travel 1.9 - 2.0 mm.
3. Testing the idle-auxiliary spring cutoff
Control-lever position 46° . After switch-over point (from starting cam) up to 1000 min^{-1} no change of control-rod travel. Control-lever position 30° . Engine-speed range $500\text{-}700 \text{ min}^{-1}$, control-rod travel 9.7 mm.
4. Testing the pneumatic shutoff box
Control lever at idle stop.
At $n = 375 \text{ min}^{-1}$ and $p_u = 450 \text{ mbar}$ (vacuum) (338 mm Hg) control rod must move briskly to control-rod travel = 0 mm.
5. Overflow valve 1 469 990 351
6. * Start-of-delivery offset (difference) between largest/smallest value 1° cam angle.
7. Set idle at PLA box. Loosen lock nut.
8. Setting the pneumatic idle increase (PLA):
At 0.4 bar vacuum, $n = 425 \text{ min}^{-1}$, control-rod travel 8.0 - 9.6 mm (11-19 ccm/1000 lifts).
9. Leak test (vacuum test) on PLA box
Apply 0.8 bar vacuum to PLA box through three-way valve and pressure gauge. By means of three-way valve cut off vacuum supply to PLA and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. FBG setting
FBG setting and blocking in accordance with start-of-delivery average of all cylinders, 19.5 ± 0.2 (0.3) degree cam angle after cyl. 1.

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS 15 RQ 250/1100 PA 111 DR
Komb.-Nr. 0 401 846 194

supersedes **3.82**
company **Daimler-Benz**
engine **OM 355**
154 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1090	12,0±0,1	10,0 - 10,2	0,3 (0,6)			
250	7,9-8,1	1,7 - 2,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min Control rod travel mm		Setting point rev/min	Control rod travel mm	Test specifications rev/min Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,5-16,5	600	16,0	11,0 4,0 1300	1135-1150 1210-1240 0 - 1,0	250	6,0	100 250 385-425 = 2,0	mind. 7,0 5,9-6,1	1090 700 450	12,0-12,1 12,3-12,4 12,6-12,7

Torque control travel on flyweight assembly dimension a mm Speed regulation A 1135 - 1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
1090	100,0 - 102,0 (98,0 - 104,0)		700 450	96,0 - 99,0 (94,0 - 101,0) 90,0 - 94,0 (88,0 - 96,0)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 KHD 18,3 a
1. Edition

En

PE 8 P 100/620/4 LS 48 RSUV 250-800 P 10/302 R
Komb.-Nr. 0 401 878 021, 0 401 878 024
1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

supersedes -
company KHD
engine F 8 M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

Test: ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca.67	800	16,0	without auxiliary spring			ca.30	250	6,0	780	0		
	840	10,9					50	19-21			350	0
	880	4,5					250	5,7-6,3				
2a	850	7,7-10,5	with auxiliary spring				300	2,0-4,0				
	880	3,0-6,5					370	0-1,0				
	950	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)	rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
	Take	from VDT-I-401/103				-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L13

L13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 a 1

1. Edition

En

PE 8 P 100/620/5 LS 48 RSUV 250-800 P 10/302 R
Komb.-Nr. 0 401 878 027

1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

Note VDT-I-401/ 103

supersedes

company KHD

engine F 8 M 716

All test specifications are valid for Bosch Fuel Injection Pump, Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel		
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm		
ca.67	800	16,0	without auxiliary spring			ca.30	250	6,0	780	0		
	840	10,9							50	19-21	350	0
	880	4,5							250	5,7-6,3	280	1,2-1,8
2a	850	7,7-10,5	with auxiliary spring				300	2,0-4,0				
	880	3,0-6,5							370	0-1,0		
	950	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40° C (104° F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	mm		
Take	from VDT-I-401/103					-	-	-			

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L14

L14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b

1. Edition

En

PE 8 P 100/620/4 LS 48 RSUV 300-1000 P 77304 R
Komb.-Nr. 0 401 878 022, 0 401 878 023, 0 401 878 031
1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

supersedes -
company KHD
F 8 M 716
engine

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Test ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control			
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11		
ca.68	1000	16,0	without auxiliary spring			ca.28	300	6,0	980	0		
	1050	9,0							100	19-21	400	0
	1070	5,0	with auxiliary spring				300	5,7-6,3	290	1,2-1,8		
	1050	5,0-10,2							350	1,2-4,5		
2a	1100	1,6-3,8							450	0-1,0		
	1150	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F)		6 Rotational speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Take	from VDT-I-401/103				-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L15

L15

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b 1

1. Edition

En

PE 8 P 100/620/5 LS 48 RSUV 300-1000 P 7/304 R
Komb.-Nr. 0 401 878 028
1-4-7-6-8-5-2-3 je 45° ± 0,5° (± 0,75°)

supersedes

company KHD

engine F 8 M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel in mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca.68	1000	16,0	without auxiliary spring			ca.28	300	6,0	980	0		
	1050	9,0							100	19-21	400	0
	1070	5,0	with auxiliary spring				300	5,7-6,8	290	1,2-1,8		
	1050	5,0-10,2							350	1,2-4,5		
	1100	1,6-3,8							450	0-1,0		
	1150	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Take	From VDT-I-401/ 103					-	-	-	-

Checking value: in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

L16

L16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b2

1. Edition

En

PE8P100 A 620/4 LS 48 RSV 250-1000 P7/304 R
Komb.-Nr. 0 401 878 044
1-4-7-6-8-5-2-3 je 45° ±0,5° (±0,75°)

supersedes -
company KHD
engine F8M716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 68	1000	16,0	without auxiliary spring			ca. 28	300	6,0	980	0		
	1050	9,0							100	19-21	450	0
	1080	4,0	with auxiliary spring				300	5,7-6,3	340	1,2-1,8		
2a	1050	7,0-10,0							350	3,2-4,5		
	1100	1,5-3,8							450	0 - 1,0		
	1180	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle speed	
Test oil temp 40°C (104 F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
Take from VDT-I-401/103	103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L17

L17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c1

1. Edition

En

PE8P 100/620/4 LS 48 RSUV 250-800 P10/318 R
Korb.-Nr. G 401 878 032
1-4-7-6-8-5-2-3 je 45° ±0,50 (±0,75°)

supersedes
company KHD
engine F8M716

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
 $(1,95-2,15)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0							250	5,8-6,2	280	1,2-1,8
2a	860	6,0-9,2	with auxiliary spring				280	3,8-4,8				
	890	2,0-5,0							360	0 - 1,0		
	940	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104 °F)	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
Take from VDT-I-401/103						-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L18

L18

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c

1. Edition

En

PE8P 100/620/5 LS 48 RSUV 250-800 P10/318 R
Komb.-Nr. 0 401 878 030
1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je 45° ^{+0,5°} (-0,75°)

supersedes -
company KHD
engine F8M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,0-2,1} (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0							250	5,8-6,2	280	1,2-1,8
2a	860	6,0-9,2	with auxiliary spring				280	3,8-4,8				
	890	2,0-5,0							360	0 - 1,0		
	940	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
Take	from VDT-I-401/103					-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L19

L19

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c2
1. Edition

En

PE8P 100 A 620/4 LS 4E RSUV 250-800 P10/318 R
Komb.-Nr. 0 401 878 045
1-4-7-6-8-5-2-3 je 45° ±0,5° (±0,75°)

supersedes -
company KHD
engine F8M716

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Test ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0							250	5,8-6,2	280	1,2-1,8
2a	860	6,0-9,2	with auxiliary spring				280	3,8-4,8				
	890	2,0-5,0							360	0 - 1,0		
	940	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Take	from VDT-I-401/103				-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

L20

L20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c3
1. Edition

En

PE8P 100 A 620/4 LS 48 RSUV 250-800 P10A318 R
Komb.-Nr. 0 401 878 067
1-4-7-6-8-5-2-3 je 45° ±0,5° (±75°)

supersedes KHD
company F8M71E
engine

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3				7	8	9	10	11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0	with auxiliary spring				250	5,8-6,2	280	1,2-1,8		
2a	860	6,0-9,2							280	3,8-4,8		
	890	2,0-5,0							360	0 - 1,0		
	940	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
Take from VDT-I-401/103						-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

L21

L21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 h

1. Edition

En

PE8PT10 A 620/4 LS 48 RSUV 250-800P10/318 R
1-4-7-6-8-5-2-3 ie 45° ±0,5° (±0,75°)
Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test
tubing 1 680 750 060

Note VDT-1-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -

KHD

company

BF 8 M 716

engine

Komb.-Nr. 0 401 878066

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0							250	5,8-6,2	280	1,2-1,8
2a		860	6,9-9,2	with auxiliary spring								
		890	3,0-5,0						280	3,8-4,8		
		940	0 - 1,0						360	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to									
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9		
Take	from VDT-1-401/103					-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

L22

L22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 h 1
1. Edition

En

PE8P 110 A 620/4 LS 48 RSUV 250-800 P10 A 318 R
1-4-7-6-8-5-2-3 ie 45° ±0.5° (±0.75°)
Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test
tubing 1 680 750 060

supersedes -
KHD
company BF8M716
KofB: Nr. 0 401 878 068

Note VDT-I-401/103
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3				7	8	9	10	11		
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0		
	840	10,8							50	19-21	350	0
	870	6,0							250	5,8-6,2	280	1,2-1,8
2a	860	6,9-9,2	with auxiliary spring				280	3,8-4,8				
	890	2,0-5,0							360	0 - 1,0		
	940	0 - 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 C (104 F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH